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Frontispiece
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P. Vandrebanc f.

SIR THOMAS BROWNE

[1605-1682]

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[From Dubovrgdiev: Aphorismi Prognostici Hippocratis, Romae, 1659.]

ANNALS OF MEDICAL HISTORY

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A FRENCH EPIDEMIOLOGIST OF THE SIXTEENTH CENTURY

By E. W. GOODALL, O.B.E., M.D.

LONDON, ENGLAND

CES temps de violence, de trahison et d'iniquité;" with these words Sainte-Beuve stigmatized the sixteenth century and fitly summed up the characters of that age so far as they were exhibited in his own country.[1] During the first half of the century France was frequently harrowed, now in one quarter, now in another, by warfare, offensive or defensive, with foreign enemies. In the latter half it was rent by disastrous politico-religious civil wars, engendered by the jealous ambition of powerful aristocratic families, who contended for the control of a succession of feeble monarchs, if not for the actual possession of the crown itself. These various wars, which left hardly a corner of the kingdom unscathed, were conducted with ferocious barbarity. For many years, too, a bigoted and cruel religious persecution added its horrors to those of war. Famine and pestilence, the natural results of human strife, increased with their measure of evil the sufferings of the unhappy nation. It was not till nearly the close of the century that Henry IV established his position as lawful sovereign and relieved the harrassed country with the blessings of peace.

It has been fortunate for the human race that events such as those which occurred in France during the sixteenth century have rarely, if ever, deterred those men from carrying out their intentions, whose minds and wills were bent on other pursuits than those connected solely with the waging of war. Had it not been so, the progress of art, literature and science would have been slow indeed. Epoch-making discoveries have been made amidst circumstances which, it can be justly supposed, would have inevitably distracted to other ends the attention of those who made them. In France in the sixteenth century persons who refrained from meddling in theology and politics, more especially if they enjoyed the patronage of royalty or the nobility, might enjoy a comparatively peaceful life. Even those who professed the reformed faith, so detestable to the orthodox, might, in these circumstances, escape the usual fate of the heretic. The celebrated surgeon, Ambroise Paré, and, at any rate for many years, the no less celebrated potter, scientist and writer, Bernard Pallissy, owed to the royal favour their immunity from persecution. On the other hand in 1536 Nicolas Cop, a Doctor and Professor of Medicine and Rector of the University, the son of Guillaume Cop, who at the very time was physician to Francis I, was obliged to fly from Paris at a moment's notice because of his heretical opinions. A perusal, however, of the lives of certain of the physicians of that age, as recorded by Bertrand and Hazon, gives little idea of its turbulent character.[2] Most of them appear to have devoted themselves strictly to the practice of their profession, the writing, translating or editing of books, and the fulfilment of their duties in connection with the Faculty of Medicine in the University of Paris, and were able to carry on their work in more or less tranquillity. Still, a few were not so fortunate. In 1563 a band of marauding Huguenots, so it is related, pillaged the library of Dr. Jacques Goupyl, and the poor man died not long afterwards of grief, it is said, at his loss. In the following year Dr. Pierre Bélon was murdered by robbers on the outskirts of Paris, while he was engaged in collecting botanical specimens. Dr. Jean Chapelain, physician to Charles IX—he had previously served in the same capacity to Henry II and Francis II—and Dr. Capel, physician to Catherine de' Medici, both died in 1569 at the siege of Saint Jean d'Angely, of an epidemic disease which was raging in the army at the time. A position at court entails responsibilities over and above those which must be borne by the ordinary practitioner, and as in the sixteenth century the King's physicians and surgeons attended their royal patron on his campaigns, to these responsibilities were added the risks of warfare. In the closing years of the century the commotions stirred up by the civil war so interfered with the affairs of the Faculty of Medicine that the schools were empty and the number of candidates for the licence to practise was very greatly diminished.

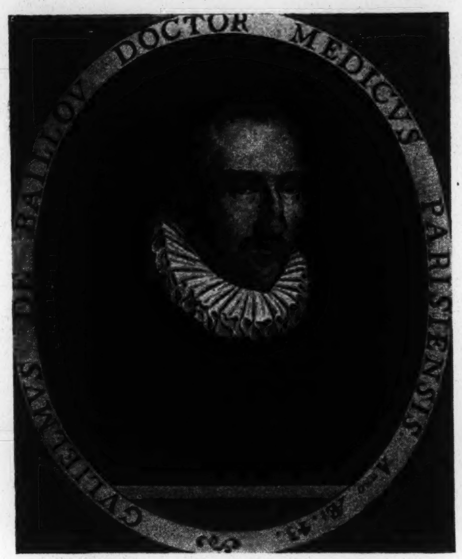
GVLIELMVS DE BAILLOV DOCTOR MEDICVS PARISIENSIS

Fig. 1. Guillaume de Baillou

Guillaume de Baillou, or as he latinized his name, Gulielmus Ballonius, the subject of this paper, was one of those physicians, referred to above, who pursued their occupations apparently quite unperturbed by the conditions under which they were living, however unpropitious they may seem to be to us as we look back upon them. Yet he must have witnessed many terrible events, for he lived in Paris, so far as we know, during the whole of his life. Paris did not escape the horrors of the age; on the contrary, it was the scene of some of the worst of them. In the sixteenth century it was a fortified city. Various estimates of the number of its inhabitants have been made; it was probably from 250,000 to 300,000. While there is evidence to show that the city was insanitary and unhealthy to a degree and that various fevers termed continued and pestilential (amongst which was included true plague), smallpox and influenza were frequently epidemic, details which give with any exactness the number and duration of epidemics, the amount of ordinary sickness and the toll of deaths, are unfortunately wanting even from medical writers. Mud, with all sorts of filth, was allowed to accumulate in the streets and was only very occasionally removed. There were several gibbets in different places in the city, upon which the bodies of the executed hung, often till the flesh had rotted from the bones. The great Cemetery of the Innocents, situated well within the city walls, was permitted to remain in such a loathsome state that the Faculty of Medicine on more than one occasion urged its closure as a sanitary measure. Numbers of decomposing corpses were freely exposed to view, yet the cemetery was the daily resort of citizens for the purpose of business or pleasure, and at night was the haunt of the dregs of the populace. During the religious persecution, which was most unrelenting in the reigns of Francis I and Henry II, heretics were frequently executed in public with hideously cruel tortures. The Parisian mob was notoriously unruly and easily incited to criminal acts, so that scenes of violence were frequent and murders only too common. Baillou, therefore, together with other peaceful citizens, doubtless became inured to the sight of deeds of which we of the present day do not care even to think. He must, for instance, have looked on at the massacre of Saint Bartholomew's day, August 24, 1572, and have endured the pitiful and revolting miseries of the siege of Paris in 1590. Perhaps he, with other scientific men who were not engaged in the government and politics, sought relief from his surroundings in unremitting attention to his professional duties.[3]

For such information as we have concerning Baillou's career we are indebted almost entirely to René Moreau, who wrote the account of his life which is to be found at the beginning of Baillou's works. Now this account is prefaced by the statement that it has been taken "ex libro Renati Moræi, Doctoris Medici Parisiensis et Professoris Regii, *De Illustribus Medicis Parisiensibus.*" A curious interest attaches to this "Life of Baillou." René Moreau, who died in 1656 aged seventy-two years, was a well-known physician in Paris during the first half of the seventeenth century. He attended Louis XIII in his last illness. Bertrand, in his account of Moreau, published and edited after Bertrand's death by Hazon in 1778, refers to Dr. Naudé, who was Cardinal Mazarin's librarian, as having in all probability seen the manuscript of Moreau's biographical work. After Moreau's death, the works he left in manuscript were purchased for 6000 livres by M. Fouquet, the Procureur-Général and Surintendant des Finances, who was a generous patron of letters. When, in 1661, Fouquet fell into disgrace, his property, including the manuscripts, was dispersed by sale. Later, Dr. Gui Patin, the pedantic Parisian physician and book-collector of the seventeenth century and pupil and friend of Moreau, searched for the manuscript of the "Lives" but searched in vain.[4] The work has never been found and therefore has never been published. How then comes it that the "Life of Baillou," written by Moreau and taken from the lost manuscript, appears at the beginning of the former's works? I can offer only the following conjecture.

Baillou died in 1616, but none of his works saw the light in print till nineteen years later, when, in 1635, the first book of the "Consilia" was published under the editorship of his wife's grand-nephew (*pronepos*), Dr. Jacques Thévart, to whom Baillou had left by will most of his books and manuscripts. In the preface to this volume Thévart states that he will not enter into a eulogy of his uncle because that has been already done by his, Thévart's, colleague, René Moreau, in the book referred to above. Thévart does not say that he has read Moreau's original manuscript, but as the first volume of the "Consilia" did not appear till 1635 he may well have done so, or a copy of that portion dealing with the life of Baillou may have been supplied to him by Moreau. Only two other Lives, written by Moreau, have come to light, those of Jacques Sylvius and Barthelemi Perdulcis (Ledoux), which were published at the beginning of their works.

Guillaume de Baillou came of a noble family which possessed an estate at Nogent-le-Rotrou, some eighty miles southwest of Paris, in which city he was born in 1538. His father, Nicolas Baillou, an accomplished architect, had betaken himself to the capital at the instance of the Guilliars, who at that time held very important positions in the kingdom, and through their influence had entered the service of Catherine de' Medici. Andrew Guilliar, President of Parliament and Counsellor of State, took the young Guillaume under his patronage and caused him to be educated with his own children at his own expense.[5] The boy proved an apt pupil. Greedy for learning (*librorum belluo*), he eschewed play and games of every sort, even those in which he might quite legitimately have indulged. By intense application he became thoroughly versed in Latin, Greek and philosophy, and for a few years taught *litteræ humaniores* at the Collège de Montaigue in the University. At that time efforts were being made in the University to abolish the study of Aristotle. The opposition to the doctrines of that philosopher had been started by Ramus (Pierre de la Ramée), who in 1536, when but twenty-one years of age, had taken as the subject of the thesis for his degree of Master of Arts the proposition, "Quaecunque ab Aristotele dicta essent, commentitia esse." Baillou's reputation for learning had risen so high that he was invited, evidently in order to counteract this movement, to expound Aristotelian philosophy, and his lectures were attended by crowded and distinguished audiences. As, however, a scholastic career no longer appealed to him, he betook himself to the study of medicine.

In the sixteenth century the medical student in the University of Paris was obliged to undergo a long course of study, at least six years, before he could enter for his final and qualifying examination, that for the licenciate. In the first place, before he could register as a medical student, it was necessary for him to have taken the degree of Master of Arts or produce evidence that he had followed a course of philosophy for at least two years. By the act of registration he became what was known as a *philiâtre*.[6] After four years' study and being twenty-five years of age, he could present himself at the examination for the baccalaureate.[7] This examination was conducted by certain appointed examiners, but every Doctor of Medicine present had the right to question the candidate. Two more years must then elapse before the bachelor could obtain the license to practise medicine. During those two years, besides studying himself, he gave lectures, on subjects prescribed by the Faculty, to those who were preparing for the baccalaureate. In that period also he ran the gauntlet, first, of the *quodlibétaire*, and second, of the *thèse cardinale*.[8] At the *quodlibétaire*, taken during the first year, the candidate sustained against ten of the doctors, from six to eleven in the morning, a thesis on a physiological or pathological subject he had chosen for himself (*quod libet*)[9]; from eleven to noon the examiners plied him with questions on subjects outside his thesis. It was, apparently, from the subtlety of his questions at this examination that Baillou, when he became an examiner in his turn, gained the name of the "greater scourge of the bachelors" (*vulgo flagellum majus Baccalaureorum singulari elogio diceretur*). At the *cardinale*, which was held during the second year, the student disputed, from 5 A.M. to noon, with his fellow candidates, in what de Boyer de Choisy calls a general mêlée, on a chosen thesis on some question of hygiene.[10]

After these tests there was the special examination on practice, an examination which was much dreaded, for every candidate was interrogated by every Doctor.

The examiners then made out a list, in order of merit, of the successful bachelors, who were presented by the Dean of the Faculty to the Chancellor of Notre Dame de Paris, who was usually the papal legate, at his residence, and he then fixed the day for the ceremony of the *Paranymphe*.[11] At this function, held in the hall of the bishop's palace in the presence of the magistrates and many other important personages, the candidates, kneeling and with their heads bare, received from the Chancellor the license to practise and the Pope's blessing, pronounced in the following words: "Ego Cancellarius, auctoritate Sanctæ Sedis Apostolicæ, qua fungor in hac parte, do tibi licentiam legendi, interpretandi et faciendi medicinam hic et ubique terrarum,[12] in nomine Patris et Filii et Spiritus Sancti." It may be mentioned here that till 1598 the University of Paris, including the Faculty of Medicine, was under the authority of the Holy See. In that year the authority passed to Parliament and the Crown. It must be remembered that originally the University was an entirely ecclesiastical body.[13]

The licentiate proceeded to take the degree of Doctor a short time after the ceremony of the *paranymphe.* He must first attend on one afternoon an assembly of the Faculty, at which addresses were delivered on the duties and dignity of a physician and the virtues of the Faculty. This function was called the *Vespérie.* Lastly, on an appointed day he was again submitted to an oral examination by the Doctors, after which he took the oath and was admitted to the degree by the President, who placed on his head the square, flat cap distinctive of his academic rank. The new Doctor then returned thanks for the successful consummation of his studies in a speech in which he displayed his learning and powers of oratory. This was the ceremony burlesqued by Molière in "Le Malade Imaginaire."

None of these examinations appears to have been held at a patient's bedside. Capitaine quotes Raynaud as saying that most of the students took the baccalaureate without having seen a single sick person. After the examination the student attached himself to a physician and with him visited his private patients.[14]

During the whole of his course the student was compelled, while in college, to speak Latin, even outside the classes and lectures. All instruction was given and all the examinations were conducted in Latin.

The Faculty of Medicine was extremely orthodox. No one but a Catholic was admitted as a student. It was incumbent on teachers and students alike, under penalty of a fine, to attend certain religious services and ceremonies. There was a period when those who left the Roman Church for the new faith were expelled from the Faculty (Bertrand).

Guillaume de Baillou was admitted a bachelor in 1568 and a licentiate and Doctor in 1570. Amongst his teachers was Louis Duret, who was an excellent Latin, Greek and Arabic scholar, and was credited with knowing the works of Hippocrates by heart. Baillou held him in high esteem, and described him, in an epigram quoted by Moreau, as *Coi lux et imago senis.* Prefaced to Baillou's "Definitionum Medicarum Liber" is a poem addressed by him to Duret, in which occur the lines,

Si qua laus redeat meo labori
In te tota caput suum redundat.

It has been stated that both Jacques Sylvius, the anatomist,[15] and Jean Fernel, the learned and at the same time popular physician, were also Baillou's teachers, but they both died before he registered as a medical student.

In those days the medicine taught in the Paris school was the medicine of the Hippocratic Collection and of Galen; the doctrine of elements, qualities, humours and spirits, with their combinations and interactions (temperaments), and of crises and critical days. Consequently the students read the works of the Collection and Galen and their commentators, ancient and modern. A work in great request in Baillou's time and for long after was the "Universa Medicina" of Fernel, which, published in 1567, after the author's death, went through twenty-five editions.[16]

From the day of his admission to the doctorate to his death forty-six years later Baillou devoted himself to teaching, practicing and writing about medicine, and to exercising certain official duties connected with the Faculty. According to Moreau, who, however, was himself a Doctor of Medicine of Paris, the Doctors of that University were noted above all other Doctors of Medicine for the perfection of their theses. These works, he wrote, were conspicuous not only for their profound learning and charm of literary style, but above all for the subtlety of their logic, so that they were to be understood only by those whose training and perspicacity were equal to the unravelling of their composition (*ut artificium non nisi peritis et oculatis innotescat*). Yet so highly was Baillou's dialectic skill rated amongst those superlogicians that he was accorded the honor, unheard of up to that date, of being requested by his colleagues to discuss for the second time, in 1615, the question he had already discoursed upon in 1602, namely, Whether a man is or is not the master of his fate?[17]

In 1580 he was elected Dean, an office tenable for two years and the highest in the Faculty to which a member could attain. During his diaconate he was obliged to deal with three troublesome affairs, the closing of the schools in consequence of a severe epidemic of influenza (*ferini at contagiosi catarrhi a caputio denominati*), the illegal practice of medicine on the part of certain Italian quacks, and the claims of the surgeons of the long robe (*togati chirurgi*) to a status in the University. The first of these troubles he could hardly avoid. The second he easily surmounted by summoning the charlatans to appear before the Senate of the University and procuring their expulsion from the city. The third was a more vexatious task.

In the sixteenth century there were two bodies of surgeons in Paris, the barber surgeons (*tonsores chirurgici*) and the surgeons of the long robe (*togati chirurgi* or *chirurgiens lettrés*), who were members of the Collège de Saint Côme, also known as the College of Surgeons. The barber surgeons worked under the directions of the surgeons of the long robe, who were better educated. They also owed obedience to the Doctors of Medicine, who taught and examined them. There was a jealous rivalry between the two classes of surgeons, which was fomented by the physicians, who wished to keep both classes under their direction. The College of Saint Côme granted a baccalaureate and a license to practice surgery, and also a mastership of surgery. This mastership, after 1552, could be conferred only in the presence of four Doctors of Medicine appointed by the Faculty. The College of Saint Côme was not a University body. Three years before Baillou became Dean the College had obtained from the King (Henry III) the right to teach and practice medicine and to style its members Doctors, but this right had not been confirmed by Parliament. The College then, with, it seems, the assistance of the Rector of the University, obtained from the Pope (Gregory XIII), the privilege of the bestowal, through his representative, of the apostolic blessing upon its licentiates, just as it was bestowed upon those of the Faculty of Medicine. In securing this indulgence the surgeons had sprung a surprise upon the physicians who, fearful that a fifth faculty, and that, moreover, another medical one, would be established in the University and that their hold on the surgeons would be lost, bestirred themselves to persuade the Pope to withdraw the indulgence. This business, full of intrigues, was not concluded when Baillou's term of office came to an end. It seems to have sickened him of public affairs, for from that time forth he devoted himself almost exclusively to medical literature and private practice, in which he acquired a high reputation as a consultant. He did, however, on one important occasion, emerge again from private life, when, in 1594, he was very graciously received by Henry IV in an interview at Saint Denis, on the eve of the surrender of Paris. Baillou addressed the King at some length on the calamitous condition of affairs in the Capital.[18] He might at that time, as also possibly on a previous occasion, have become a court physician[19]; but as he considered the position to be the equivalent of slavery, he refrained from availing himself of what others would doubtless have accepted with alacrity as a great opportunity for advancement. He took the same course in 1601 when Henry invited him to accept the appointment of physician to the Dauphin. Baillou declined, ostensibly on the ground of advancing years and failing health, but really because he was unwilling to exchange domestic ease and philosophic frugality for the turmoil of a court and the luxury of princes.[20] He confined his practice, therefore, to those of his own class and, since he was popularly known as the "children's doctor," he must frequently have been consulted about the ailments of children. He lived to a good age, dying in Paris in 1616 in his seventy-ninth year.

As regards his appearance Baillou is described as being well set up, but inclined to corpulence, with a cheerful expression of face and a pleasant voice. He was a very courteous, charitable, straightforward and pious man. Through a strict Catholic (he is said never to have missed a daily attendance at mass), he yet separated himself from those of his religion who plotted against the, to them, heretic King, Henry IV, for he held that monarch to be the lawful heir to the throne. His writings reveal that he was far from possessing the *nil admirari* attitude of mind.

Baillou married the daughter of an apothecary of Paris. He seems to have been happy in his marriage, for Moreau tells us that he was so wrapt up in his books that he was almost of no account in the management of his family affairs, which he left to the prudence of his wife. Doubtless she controlled them with excellent judgment, for he left his children, two sons and two daughters, comfortably off.

Of his two sons the eldest obtained an official post in connection with the army. Baillou had set his mind on bringing up the second, a youth of high promise, to follow him in his profession, but to his intense disappointment, the young man without his father's knowledge or consent, entered the Capucine order. Baillou, however, bore this frustration of his hopes with pious resignation and is said to have exclaimed on hearing of his son's choice: *meliorem ille partem elegit quae ab eo non auferetur.* Baillou's professional inheritance, as it were, was left to his two grandnephews, both of whom were Doctors of Medicine. One of them, Jacques Thévart, attained distinction in his profession and became especially known as the editor of his uncle's writings.

Although Baillou died in 1616 none of his works was published till 1635. There appears at the end of Moreau's "Life of Baillou" the statement that amongst his books which are ready for the press there are in the libraries of Dr. Thévart and Dr. le Letier (the other grand-nephew), seventeen, *libri*, *libelli* and *opuscula*, reckoning two books of “Epidemics,” and a list of these books is given. Of these seventeen books six do not seem to have been published. On the other hand, four books whose titles do not appear in the list certainly were published. These are the third book of the “Consilia,” the “De convulsionibus,” the “De rheumatismo” and the “De pleuritide dorsali,” which s a mere tract. The list of Bail-ou's published works given in the “Biographie Médicale” of Bayle and Thillaye, Tome I, omits the “Liber Paradigmatum,” which was originally published with the third book of he “Consilia,” but includes “Adver-ariorum Medicinalium Liber,” with-ut, however, giving the date of ublication. This work is not in the “Opera Omnia” which was published t Venice in four volumes in 1734 to 736. It appears, therefore, that Bail-ou wrote twenty-one books, including ne or two short tracts, and of these fteen have come down to us in rint. The first work to be published as the first book of the “Consilia” n 1635, and the last was the third ook of the “Consilia” with the “Liber Paradigmatum,” in one vol-me, in 1649. They were all published n Paris under the editorship of Dr. Thévart.

At the beginning of the first volume f the “Opera Omnia” (Venice, 1734), s a dedication by the printer and ublisher, Angelo Geremia, to Sir Hans Sloane, who at that time was resident both of the Royal College of hysicians of London and of the oyal Society. He was also physician to George II. At the end of each of the four volumes is an index of Greek words used in the volume with a Latin translation by Dr. Anthony M. Zanini. The index to the third volume is prefaced by a dedicatory address, which is a medley of praise, banter and censure, by Zanini, to Dr. Thomas Dover, on the use, or rather abuse, of mercury as a remedy.[21]

My interest in Baillou's writings has been chiefly concerned with those of which the titles attracted me to them, namely, the “Epidemiorum et Ephemeridum, Libri Duo,” hereafter referred to for brevity as the “Epidemics,” and it is with them that I shall deal chiefly in this paper. If Baillou's name is remembered in this country today, the remembrance is due solely to those books. Moreover, of all his works they alone, with the exception of a few extracts from the others, have been translated into a modern language, to wit, into French by Dr. Prosper Yvaren in 1858.[22]

The two books of the “Epidemics” were not published till 1640, that is twenty-four years after Baillou's death. We do not know exactly when they were written. The date Baillou appends to the address to the “benevolent reader” which prefaces the first book is “4 Calend. Novemb., 1574”; but as this book brings the subject up to the spring of 1575, it is clear that the address was written before the book was finished. The dates of Baillou's writings cannot, therefore, be fixed by the dates of the prefatory addresses.

In the prefatory address to the “Epidemics” Baillou explains why he has undertaken the work. The human race does not consist of units thrown together by chance for the purposes of the moment. It has progressed cooperatively with a definite intention from one generation to another, and, in order that it should continue to progress favorably and profitably, it is the duty of the medical men of one age to collect and hand on their knowledge for the benefit of succeeding ages, in accordance with the example of Hippocrates.

Although Baillou begins the work by stating that only a study of the weather prevailing immediately before or during the occurrence of a group of diseases can give the physician a clue to their proper treatment, a perusal of the "Epidemics" reveals that he did not carry out that principle very closely. He deals with no fewer than eighteen seasonal states of the weather or constitutions—for he translates the Hippocratic word *katastasis* by the Latin *constitutio*—extending from the autumn of 1570 to the summer of 1579, both inclusive, omitting, however, the period of one year and a half between the autumn of 1571 and the summer of 1573[23]; yet, in the case of four of these constitutions he does not write a single word about the weather, and of three or four of the rest he writes very little.[24] But whether he mentions the characters of the seasons or not, he usually makes a statement or two of a general sort as to the diseases which were prevalent and then fills up his narrative with accounts, sometimes detailed, of a large variety of cases, medical, surgical and gynecological, most of which are in no way related to the state of the weather or the character of the prevalent epidemic diseases. He nowhere brings conclusive evidence to show that any particular disease depends upon a particular variety of weather. In a few passages both in the "Epidemics" and some of his other works he states dogmatically in connection with definite cases or diseases that the prevalence of weather of such and such a sort influenced the form of the disease.

In the course of the "Epidemics" Baillou makes several what may be termed epidemiological pronouncements, which are not, however, supported by evidence worthy of consideration. At the very beginning of the first book he lays it down that one fact must be acknowledged, namely, that the heavenly bodies exert a certain influence on those of the earth. By heavenly bodies are meant the sun, moon and stars. Amongst the terrestrial are evidently included human beings. What this influence is and in what manner it acts are not explained, but it is felt especially by those whose vital powers have been depressed by disease. To come to details we are told, for instance, later on, that in December, 1573, an eclipse of the sun gave rise to diseases of a nature hitherto unheard of, convulsions, deliriums and disturbances coming on in the course of illnesses very suddenly and without any known cause; in fact so unexpected and so serious were they that Baillou would never have believed that the mere disposition of the sun, moon and heaven could have produced them; and the case of an illustrious dame is related concerning whose illness, the nature of which is not stated, a consultation of several eminent physicians was being held. At the very moment of the eclipse the lady was seized with, apparently, a severe fit of some sort and was believed to be near to death; but she came round as the eclipse passed off. We are also informed, however, that the physicians, not expecting that anything serious was likely to occur, had left the lady and gone to the top of the house to observe the eclipse, and were called back in a hurry to attend to the prostrate patient (*ad aegram decumbentem*).[25]

In the account of the third constitution Baillou tells us that the termination of chronic diseases is in accordance with the course of the sun, that of acute diseases with the revolutions of the moon.

At the close of a discussion on the relation of the disposition (*conditio*) of the body to liability to sickness Baillou refers to the statements of Hippocrates and Pliny that the social condition (*conditio*) of a class of persons is a factor in the incidence of disease. He states that an explanation of this question will be found later in his book, but he appears to have forgotten his promise.[26]

While the source of pestilential diseases is usually to be found in the heaven and the air, yet an endemic pestilential disease can be due to some unhealthiness of a place or some viciousness in the mode of life of its inhabitants.

Baillou twice refers to an aphorism which is to be found in Book 6 of the "Epidemics" (of the Hippocratic Collection), which was at one time attributed to Hippocrates, that dry weather is healthier than wet, a statement that few epidemiologists of the present day would support, at any rate as regards Europe. On the whole he agrees with the aphorism, but argues that some reservation must be made in respect not only of the degree of dryness, for an excess is harmful, but also of the quality and amount of the humors in the human body.

There are four passages in the "Epidemics" in which Baillou discusses whether there is "anything divine" (*to theion*) in the causation of disease, (see constitutions of summer of 1576, winter of 1576 and summer of 1578). In the first of these passages the question arises in connection with *morbilli*. He is of the opinion that while on the whole *morbilli*—and by *morbilli* he means a morbilliform rash—are the symptomatic evidence of an excretion due to an unusual, vicious interaction of the humors of the body (*cacochymia*), which cacochymy is indeed the principal cause of the disease, yet the state of the atmosphere may contribute some influence, the nature of which he does not know. He comes to the same conclusion in two other passages in respect of diseases in general (constitution of summer of 1578). In these three passages Baillou assigns to the "something divine" the rôle of an auxiliary in the production of a special, usually an unfavorable, character of a disease, but it could not so act if the cacochymy were not already present. When dealing with the constitution of the winter of 1576 he writes that the south wind had "something divine" about it. Even then it is only by virtue of a particular disposition of the bodily organs that the "divine" property of the wind is able to act. These are the only passages in the "Epidemics," and they are by no means clearly expressed, in which Baillou gives hints that he suspected that there was another unknown factor in the causation of disease besides the celestial influences, weather conditions and the humors of the body, and he was far from thinking that such a factor might cause an epidemic. In a later work, however, he does more clearly admit the existence of *to theion* as a mysterious influence in the causation of disease.[27]

In the chapter on the constitution of the spring and summer of 1576 Baillou states that the diseases of the autumn, and especially the fevers, are the worst. This is probably due not to the vicissitudes of the weather but to some alterations in the properties of the humors. Then he puts forward the curious suggestion that perhaps the same cause which in the autumn makes the trees grow old and shed their leaves, leads to an enfeeblement of the natural forces of human beings, which renders them more liable to disease.

In two passages Baillou refers to "germs" (*semina*) in connection with disease. The first is towards the end of the chapter on the autumn of 1570. It is there stated that mercury possesses a protective quality against all "germs" of corruption, because it is the "germ" of all the metals. And again, (autumn of 1575), in referring to an outbreak of exanthematous disease which is related in the 7th book of the "Epidemics" of the Hippocratic Collection, he states that "the germ of the evil lay concealed." It is clear, however, that he uses the word "germ" in the general sense of origin or cause; he does not appear to have had the slightest conception of a living and self-propagating seed.

From all that has been said above it appears that Baillou made no advance on the conceptions of Hippocrates and Galen in respect of the knowledge of the causation of epidemics, and had no idea of an infective agent as a cause of either a disease or an epidemic, in which subject he was much behind his Italian contemporary Fracastor. Indeed, I am not sure that I am not elevating him on too high a pedestal when I call him an epidemiologist. The accounts he gives of outbreaks of diseases in Paris during the nine years covered by his "Epidemics" are vague and wanting in detail from the epidemiological point of view. He is content to say that such and such a disease raged or was very prevalent, or that there was a multitude of cases, occasionally adding such a detail as that men, women or children were especially the victims or that the illness was associated with indulgence in fruits; but of the real extent and progress of the outbreak he tells us nothing. Moreover, such epidemiological facts as he does give us are ill-arranged and mixed up with clinical accounts of individual cases which have no epidemiological value.

Yvaren, in his very interesting introduction to the translation of the "Epidemics," divides epidemics into five different classes, in accordance with the character which gives to the epidemic its own peculiar physiognomy. In the first class inflammation (phlogosis) is the predominant feature; in the second, catarrh of the mucous or serous membranes; in the third, the bilious element, due to an excessive action of the liver; in the fourth, putridity or malignancy; and in the fifth, the nervous element. Yvaren endeavors to harmonize with this classification not only some of Baillou's constitutions but also certain epidemics of recent times. It is noteworthy, however, that neither in the classification nor in the endeavor does he make the slightest attempt to correlate the dominant feature of an epidemic with any special state of the weather, in spite of what he has previously written in praise of the Hippocratic and Ballonian methods. You may, indeed, according to him, meet with more than one predominant character during the same constitution. Thus, he finds evidence of the presence of the characters of the first, second and third classes of epidemics in the diseases which were prevalent during Ballou's constitution of 1573, and of a combination of the inflammatory and catarrhal characters in the constitutions of the autumns of 1574 and 1576. But if such combinations be allowed, what becomes of the principle of the predominance of any one character, as defined by Yvaren, or of any one constitution, as imagined by Baillou and Sydenham. In my view, Yvaren, partly out of his admiration for Baillou and partly to support his own epidemiological ideas, finds much more in the writings of the sixteenth century physician than is really there.

As Baillou and Sydenham both modelled their epidemiological work on that of Hippocrates it was almost inevitable that, sooner or later, a comparison would be made between their writings. More has been done in this way across the Channel than at home. I can cite Barthez (1801), Dumas (*ca.* 1807), Rydellet (1820), and Fiessenger (1896). Barthez and Dumas both consider Baillou to be the superior of Sydenham, partly because he was the first of the moderns to revive the Hippocratic method and so act as a guide to Sydenham, in which point Rydellet agrees with them, and partly because of his greater learning, especially in the ancient writers.[28] Fiessenger prefers Sydenham to Baillou. The latter's learning, he considers, was a hindrance to him rather than a help. Baillou could hardly ever record or interpret a single fact without first appealing to the statements or opinions of Hippocrates or Galen. Sydenham thought for himself. I agree with Fiessenger in allowing Sydenham the exhibition of a much more orderly method than Baillou possessed. Moreover, in my opinion, Sydenham pursues his subject more thoroughly to the end than does Baillou, who is very prone to leave one matter unfinished in order to follow another. Sydenham was really puzzled about the causes of epidemics and tried to find them out. Baillou also was puzzled; but there he left the question. The very fact I have mentioned above, that, in writing of four of his constitutions, Baillou omitted altogether any account of the prevailing weather, is a proof that he was not thinking very seriously about the subject.[29] Both Baillou and Sydenham were in the first place clinicians, and I doubt if the one was in that respect more acute than the other, if allowance be made for the century that separates them.

It is an interesting but purely academic question whether Sydenham, before he published the "Observationes medicæ circa morborum acutorum historiam et curationem," had ever read Baillou's "Epidemics." Picard comes to the conclusion that he had, without, however, getting into debt to them, and with this conclusion I agree.[30] Baillou's work was published in 1640 and Sydenham's in 1676. There is no reference to Baillou in the "Observationes

Medicæ." There is one point which is certainly common to both writers, namely, that each believed that a knowledge and understanding of the prevailing "constitution" would enable him to treat his patients appropriately. However, when it came to practice, both of them either forgot the point or had not obtained the requisite information;[31] for the character of the weather did not influence their treatment of patients in the slightest degree, and there is no evidence that either of these physicians ever acquired the knowledge he professed to seek by this particular method of enquiry.

Whatever we may think of Baillou as an epidemiologist there can be no doubt of his ability as a clinical observer. His most notable achievement was the separation of whooping-cough, of which he gives a short but sufficiently clear description in the "Epidemics," from other febrile diseases in which cough is a prominent symptom. There was an outbreak of whooping-cough in Paris during the spring and summer of 1578. The disease had evidently struck the Parisians as being different from other diseases with which they were familiar, for Baillou states that it was popularly known as *quinte* or *quintane*. In those days *coqueluche* was the common name for influenza.

During the winter of 1574–75 measles (*rubiolæ*) was present and Baillou gives a good account of its symptoms. He notices that the rash may come out as late as the fifth, sixth or even ninth day. He mentions a case in which a seven month's child was born with the rash out, the mother being at the time the subject of the disease. In another place he relates the case of a boy in whom an attack of measles began with dyspnea (orthopnea) accompanied with a harsh voice and a very loud noise on respiration (evidently laryngitis); *at adventantis rubiolæ id fuit indicium*, that is, it proved to be the sign of the onset of measles. These observations of facts now well known were made, so far as I am aware, for the first time by Baillou. It is possible, however, that Rhazes had noticed the occasional late appearance of the rash of measles.[32]

In the chapter in which he deals with the constitution of the winter of 1574–75 Baillou makes use of two words each of which might be translated by our word measles, namely *morbilli* and *rubiolæ*. He does not clearly distinguish between them either as cutaneous lesions or as general diseases. In agreement with the views of the medical men of his day he looked upon the various cutaneous lesions of the acute febrile diseases as evidence of the action on the skin of a morbid substance, the result of some vicious interaction of the humors, which was being excreted through the skin. In the case of *variolæ* and *morbilli* this substance originated in what was believed to be the menstrual blood of the patient's mother, which had been retained and had passed into his body during his intra-uterine life. The nature of the cutaneous lesions depended upon the degree of viciousness of the substance to be got rid of. This was the pathology of the Arabian physicians. Baillou did not recognize different acute exanthematous fevers in the same sense as we do. A measles (*morbilli*) might turn into a smallpox (*variolæ*). In one passage, indeed, he draws attention to the necessity of observing, in times when *morbilli* are prevalent, whether the aggravation of the fevers (presumably accompanying the *morbilli*) is not due to a *morbillorum suppuratio;* and in another he states that *rubiolæ* partake of the nature of erysipelas, while *morbilli seu* (not *et*) *variolæ* are nearer that of miliary herpes. Baillou describes the constitution of the winter of 1574 as one characterized by a crowd of *morbilli, variolæ, puncticulæ, exanthemata* and *rubiolæ. Puncticulæ* are described as being red spots like flea-bites. It was not till some time after Baillou that the diagnostic value of these erythematous rashes was recognized.

It is in relation to the early laryngitis of measles that Baillou refers to the case of what there can be no doubt was one of laryngeal and tracheal diphtheria. He is discussing the cause of the dyspnea, by which he is puzzled. Baillou did not see the case himself; it was told him by a surgeon who had made the autopsy. The trachea was lined with a tenacious, firm phlegm, like a membrane (*pituita instar membranæ*).

In the "Epidemics" we find references to an autopsy on a case of dysentery, to epidemics of influenza, to contagious ophthalmia and to an outbreak which was probably cerebrospinal fever. The account of the constitution of the summer of 1575 contains a classification of fevers on the pathologico-clinical basis of the day, a classification which, if the exanthemata, except typhus and enteric fever, are excluded, served medical writers till well on in the nineteenth century. The names of the fevers are derived chiefly from the ancient writers. It is difficult to distinguish in Baillou's accounts the tertian and quartan from the rest of the continued fevers. He notices that rigors are often met with in some cases of continued fever without the presence of suppuration, a now well recognized occurrence in the enteric fevers.

There can be little, if any, doubt that Baillou saw cases of influenza, whooping-cough, measles, smallpox, plague, mumps, dysentery, typhus, enteric fever, scarlet fever, erysipelas and cerebrospinal fever. Most of his best described cases are to be found in the books of "Consilia"; enteric fever in Liber I, Cons. 57, 82, 85, 86, 98; Liber II, Fourth History (though this case might be one of undulant fever), Eighth History, and Cons. 12. Typhus in Liber II, Fifth History. Cons. 37 and 72 in Liber I read suspiciously like hemorrhagic smallpox, and Cons. 45 like encephalitis lethargica.

Reference has been made to Baillou's reliance upon the writers of antiquity, especially Hippocrates and Galen. It should be remembered that he lived during the period when Medicine, under the influence of the recent revival of letters, was freeing herself from the Arabian interpretation of the old masters and was appealing straight to the old masters themselves. The medical writers of the time were proud of this power of appeal and made use of it to the utmost of their ability, which was high. Baillou was one of a group of which the members looked upon the translation and exposition of the Greek physicians as one of their most pressing duties. He will, therefore, if he can, cap a case he has observed with a similar one recorded by Hippocrates, Galen or some other ancient writer, and he will endeavor to square his treatment with theirs.

But while he was an ardent disciple of Hippocrates and Galen—he wrote the three *opuscula*, "De arthritide," "De calculo" and "De urinarum hypostasi," for the express purpose of defending the ancient writers, especially Galen, against what he considered to be the innovations of Fernel—yet he was no slavish adherent. Not only does he advocate the principle that the views of modern writers should be given a hearing,[33] but in it least nine passages in his "Epidemics" he distinctly states that his own experience leads him to disagree totally with either a statement made or a line of treatment recommended by Hippocrates.

It is not within the scope of this paper to deal with other of Baillou's writings. He is said to have taken more pains with the "De virginum et mulierum morbis liber" than with any other of his works. The first, however, to be published were the first two books of the "Consilia." Baillou's grand-nephew and editor, Thévart, evidently was of the opinion that they were the most useful of the manuscripts left him by his uncle, and he must in some way have made the contents known before their appearance in print, for he states in the dedication and in the preface that their publication was both desired and hoped for by the *philiâtres*.

Baillou's "Epidemics" and, so far as I have looked into them, his other clinical writings also, show him to have been a man of acute observation. Both in the "Epidemics" and in the "Consilia" he records a number of cases which make interesting reading even now. He was present at several post-mortem examinations, including those on Jeanne d'Albret, the Queen of Navarre, and Charles IX of France. There was, of course, a suspicion of poisoning in both cases, though Baillou does not mention it. He says that the autopsies revealed peripneumonia, of which the Queen died, but that the disease of the lungs did not cause the death of the King.

Baillou was also possessed of a most enquiring mind, and he is constantly asking questions which he has not the means to answer. One of the most noteworthy is that which he puts in the case of a man who recovered after the removal of his spleen which was protruding through a wound, *Estne igitur splen tam necessarius?* A man of shrewd sense, too, he was, and in his writings will be found passages containing most useful advice to the young practitioner, advice, moreover, which is not confined to professional subjects.

In an age when most physicians were content to rely more upon the opinion of antiquity than the experience of the bedside and when epidemiology in the proper sense of the word was unknown, Baillou may be regarded as an epidemiologist because of the effort he made to record the sequence of diseases during a series of years, and he was certainly, in spite of his credulity, which he shared with his professional brethren, a great clinical physician.

References and Notes

1. *Causeries du Lundi*, Ed. 3, 4: 425, (Août 11) 1851.

2. Notices des hommes les plus célèbres de la Faculté de Médecine, *etc.* . . . rédigée par Jacques Albert Hazon, 1778.

3. Baillou's address to the "benevolent reader" which is given as a preface to Book I of the "Consilia," is dated Paris, August 13, 1572, that is eleven days before the massacre. As the city was at that time thronged with the nobles of the opposing religions and their retainers, it must have been seething with

excitement. The address is a short essay on the obligation which lies on every one to impart to others the knowledge he has acquired. In it Baillou writes of those who bury themselves in private study, enjoy private leisure, or are attracted by the ease of obscurity (*umbra et otio delectati*). The preface to the "Opuscula" is dated November 13, 1591. The length of years which many of its members enjoyed justified the epithet *saluberrima* which the Faculty of Medicine applied to itself.

4. Both Moreau and Patin signed the "Approbatio" of the Faculty of Medicine to Book II of Baillou's "Consilia," published towards the end of 1635.

5. Andrew Guilliar, Guilliard or Guilliart, the name is variously spelled, was evidently a man of strong character. Together with the Comte de Sancerre and the Chancellor, Michel de l'Hôpital, he refused to sign the warrant for the execution of the Prince de Condé at Orleans in 1560, which the Guises were so anxious to hurry on (Moreau). The first "Consilium," on headache, of Book I of the "Consilia" is addressed to him by Baillou.

6. From *philos* and *iatros*, a lover of physicians.

7. That is if he was M.A. Paris; if he was M.A. of another university he had to study for eight years.

8. So named after Cardinal d'Estouteville, the papal legate, who in the fifteenth century had effected important reforms in the University.

9. Three of these *quodlibétaire* theses are appended to Baillou's "Liber de Rheumatismo," first published in 1642. The curious will find several more, together with a few *thèses cardinales*, bound together in one volume in the Library of the British Museum (1182.e.9.(43)). Some of the questions discussed are very odd.

10. See "Les étudiants en médecine de Paris au XVIe siècle," par C. J. Henri de Boyer de Choisy (1905), a book to which I am indebted for most of my information about these examinations.

11. From *paranymphos*, a bridesmaid; the Dean acted as a bridesmaid at this marriage, as it were, of the licentiate to the Faculty.

12. This extraordinary privilege had been granted by Pope Nicolas V in 1460.

13. It was the custom, after the bestowal of the apostolic blessing, for the doctors to propound for discussion with the newly qualified licentiate who had come out at the top of the list any question they liked. Some of these are very curious; for instance: In 1668, *Utrum Tobiæ ex piscis felle curatio naturalis?* In 1670, *An qui mel et butirum comedit, sciat reprobare malum et eligere bonum?* This question was suggested by Isaiah vii, 15. In 1692, *Ex qua parte manaverit aqua quae profluxit a mortui Christi latere, perforato lanceæ acuto mucrone?* Other questions, however, are more reasonable and might, indeed, be thought worthy of discussion today. Thus in 1740 we find the question, *An pestis est morbus contagiosus, et posito quod sit morbus contagiosus, cur omnes æqualiter non afficiat?* And in 1762, *An medicus eo felicior in praxi quo parcior in præscribendis remediis?* (See Bertrand and Hazon: Éloge historique de la Faculté de Médecine de Paris, Oct., 1770). Some of these subjects, however, were facetiously and not seriously proposed.

14. See Capitaine. Un grand Médecin de XVIe Siècle (1925), p. 43; Raynaud, Les Médecins au Temps de Molière.

15. Not to be confused with Francis Sylvius (1614 to 1672), after whom the Sylvian fissure is named. The aqueduct of Sylvius is named after Jacques Sylvius (1478 to 1555).

16. Fernel's works, taken one with another, went through a large number of editions, or rather reprints, eighty-seven, according to one writer, (Capitaine, *loc. cit.*, p. 43). The number, twenty-five, of the editions of the "Universa medicina" I take from the "Dictionnaire historique de la médecine," 1828, 2: 295. The last edition of the work was published in Geneva in 1680. Fernel (1497 to 1558) was the leading French physician of his day, and was for some years a contemporary of Ambroise Paré (1509 to 1592), who was the leading surgeon. At first he devoted himself to mathematics and astronomy, and was the first to measure a degree on the meridian. He was physician to Henry II, both while he was Dauphin and after he became King. After Fernel's death a curious legend arose that by his advice Catherine de' Medici was cured of sterility. Henry and Catherine were married for ten years before the birth of their first child. According to Brantôme, however, it was a natural habit of the women of the

Medici family to be tardy in conception. A similar statement was made by Marguerite, Queen of Navarre, the sister of Francis I.

17. This is a free translation of, *An cuique bominum sua μοῖρα πεπρωμένη suus Genius?* The statement that Baillou was requested to discuss the question for a second time I take from Moreau. I find, amongst the theses referred to above in note 9, one on this very question which was discussed at a *quodlibétaire* held on November 12, 1615. The disputing bachelor was Lazarus Pena, of Marseilles. Was he the "one Dr. Pena," mentioned in the essay "Of Prophecies," whom Bacon met in Paris? He must have been a bold youth, for Baillou himself, the original propounder of the question, was the presiding examiner, and in that capacity opened the debate in opposition to the candidate. Doubtless this was the occasion referred to by Moreau.

18. Yvaren says that Baillou was chosen by the citizens of Paris to present the keys of that city to the King, ("Epidémies et Ephemérides," p. 71), but he does not give the source of his information. Bertrand and Hazon state that he went to St. Denis to assure the King of the fidelity of the Faculty (*loc. cit.*, p. 73).

19. The previous occasion was in October, 1582; so I read Baillou's letter to Marc Miron, physician in chief to the King (Henry III), prefaced to the third book of the "Consilia" and dated Paris, October 16, 1582. Bertrand, however, states that Baillou was physician to Henry IV.

20. According to Moreau the courtiers treated their medical attendants like puppies, chained up or on a lead; (*aulici qui Medicos velut catulos in compedibus vinctos et alligatos retinent*). It is to be feared that some of these practitioners submitted more or less willingly to this servitude. Henry II's favorites were a rapacious crowd—and the same statement may be made of those of his immediate successors—for ever pestering him to give them vacant inheritances and confiscated estates; "they [i.e. the courtiers] had doctors in Paris . . . who did not fail to keep them informed as to the progress of the maladies of their patients, when these happened to be rich, and very often, in consideration of a gift of a thousand écus or a benefice of a thousand livres a year, caused them to die." (Quoted from the "Mémoires de Vieilleville" in "Henri II, his Court and Times," by H. Noel Williams, 1910, p. 185.) No. 144 of the "Paradigmata" of Baillou is the case of a man who *a medico suo venifico poculo inficitur;* but the account does not state whether the poisoning was wilful or accidental.

21. This was the adventurous inventor of the celebrated and useful powder. Baillou has been blamed by one of his critics for the too lavish use of Greek words and quotations, with which, in truth, his writings are freely peppered. Zanini, however, is not to be outdone in this linguistic display, for, in the dedicatory epistles prefixed to his indexes, he imitates his idol, Baillou, to such an extent, that he has found it necessary to supply additional indexes with translations of the words he has himself employed.

22. Dr. Théophile Bonet, in the fourth volume of his "Bibliothèque de Médecine et de Chirurgie" (Geneva, 1708), has published eighty-five extracts, translated into French, taken from Baillou's works.

23. Was his attention diverted by the events in Paris or was he turning it to the preparation of his "Consilia"? (See note 3.)

24. Baillou does not use the phrase "epidemic constitution," but only "constitution," of the season or year. So far as I have been able to ascertain the combination of words "epidemic constitution" was first put forward in print by Nicolas Massa in his "Liber de Febre Pestilentiali etc." (Venice, 1540). Perhaps a search into the works of other writers would reveal the phrase elsewhere. Yvaren quite unjustifiably translates Baillou's words "tempore pestilenti" by "des constitutions épidémiques" (p. 174).

25. And to leave the eclipse alone! What a scene Molière could have made of this incident! Baillou was not present at this consultation.

26. Baillou makes (the supposed) Hippocrates say more than he actually does say. Hippocrates merely gives facts, without explanation.

27. A large portion of Chapter IV of the "Liber de Virginum et Mulierum Morbis" is devoted to a discussion of the question, *An sit in mulierum morbis τὸ θεῖον?* Baillou analyses the views of Hippocrates and Galen on the subject of *τὸ θεῖον* and comes to the conclusion that by it is meant some unknown fault or vice of the seasons (*temporum*

defectio), from which arise diseases of an unusual or severe character.

28. I quote from Yvaren's introduction to Baillou's "Epidemics," as I have failed to obtain the writings of Barthez and Dumas on this subject. Yvaren rebukes Dumas for the unjust severity of his criticism of Sydenham, Rydellet's short criticism will be found in the "Dict. des Sci. Méd., Biog. Méd.," 1: 502. Fiessenger's views are given in his La thérapeutique des vieux maîtres; La thérapeutique de Guillaume Baillou, in the *Gaz. Méd. de Paris*, 67e Année, 9e Sér., 3: 359, 1890.

29. Sydenham, too, is guilty of the same fault, but he is always looking for something above the weather. The sequence of his epidemics is well observed and the characters of the diseases are well described.

30. Sydenham, Sa Vie—Ses Œuvres (1889).

31. As regards Sydenham, Professor M. Greenwood has drawn attention to the fact that Freind pointed this out long ago.

32. Some of those who have written about Baillou have expressed the opinion that the disease he described as *rubiolæ* was scarlet fever or possibly rubella. Baillou did not distinguish between the diseases now called measles and scarlet fever. His *rubiolæ* meant now one, now the other affection. His *morbilli* meant any macular and papular erythema, whatever its cause. It might be at one time a prodromal rash of smallpox, at another the first stage of a true smallpox eruption, especially if confluent; or again it might be now a "septic" rash, now, if unaccompanied by catarrhal symptoms, the rash of our measles (*morbilli sine catarrho*). The passage in Rhazes will be found in his "Liber Continens"; see Greenhill's translation of "A Treatise on the Small-pox and Measles," p. 119.

33. See the letter to the reader at the beginning of the "Liber de arthritide."

[From Trattato di Christoforo Acosta Africano, Venetia, 1585.]

GALEN'S WRITINGS AND INFLUENCES INSPIRING THEM

By JOSEPH WALSH, M.D.

PHILADELPHIA

PART III

His arrival and studies in Alexandria (152?–157 A.D.). His medical teachers: Numesianus, Heraclianus, Lucius and Julian. His castigation of the last. His important philosophical work on posterior analytics or demonstration. Denunciation of Methodology and of the atomic and evolutionary theories. Compiles a compend of anatomy and several dictionaries. Other teachers influencing the thought of the time: Apollonius Dyscolus, Claude Ptolemy. The notables of the age. Galen's frequent rather serious illnesses. Alexandria as a publishing center.

IN Alexandria Galen acquired at least some of the skill in dissection making him the greatest anatomist of the age, and one of the most eminent of all times. Here too he began his life work of reforming philosophy and recreating medicine. And this is no surprise since in the great Capital of Egypt at the time were Claude Ptolemy, who was successfully putting on a new basis astronomy, mathematics, geography and music; Apollonius Dyscolus, who was remodelling grammar; and a number of others who were making a pretentious, even if not a very brilliant, attempt at revising theology. Under the circumstances everything in connection with his extended sojourn is of interest.

In describing different kinds of chill (VII, 635)[1] he tells us: "I saw a chill in one of our school fellows in Alexandria just after we put into port at the beginning of the time between the rising of Arcturus and the setting of Pleiades"[2] (between mid-September and November), in other words, he reached Alexandria in September or October apparently of 152 A.D.

We have statements to show that he left home in the year almost surely of 151 and returned from Alexandria positively between September 157 and 158, and very likely in the Fall of the former considering the surgical work he was able to accomplish in Pergamum before he was appointed physician to the gladiators in September of the latter year. During these six years he reports studies in Smyrna which would seem to require not more than a year, and a journey to Corinth to become the pupil of Numesianus whom he followed to Alexandria, his running account making it appear that the stay in Greece was very short. His sojourn in Egypt was long, in fact, our researches lead to the opinion that he remained five years arriving in October at the age[3] of twenty-two (152 A.D.), and returning home in the Fall of 157.[4]

Apparently also he had a friend or friends accompanying him though this is not to be wondered at since we know from history that the number of students traveling widely to complete their education was very large. They went to Alexandria for medicine, physics, mathematics, astronomy, philology and music; to Athens and Asia Minor for rhetoric, oratory, philosophy and law, and to many places for the sake of the broadening effect of travel or on account of individual teachers in special branches. Later during his residence in Rome, Galen undoubtedly met not a small number who had pursued their studies in the various places he himself had visited.

In his different writings he gives us quite a few details of these years in Egypt. Going for the purpose of studying under Numesianus, the most celebrated anatomist in the Empire, to whom he undoubtedly had letters of introduction from the Smyrniote Pelops, he was brought in contact immediately with his son Heraclianus also a physician and a teacher of anatomy; in fact, it would appear that he was the active head of the anatomical school known through the name of and superintended by the father. With the desire to become the pupil of Numesianus, he was not prepossessed by the son. Yet, influenced by the unexpected cordiality of his welcome, and further acquaintanceship proving his worth he "became associated with him in a not subordinate capacity" (xv, 136) which we take to mean that he became his assistant or associate.

He makes the whole of this plain in remarks in his great textbook on anatomy completed about forty-three years later (195 A.D.), long after the death of Numesianus and his son, and after he himself had reached the pinnacle in this subject. Speaking of physicians who had become known as anatomists but published nothing, he says:[5]

> Mystery shrouds their conduct. In my opinion they either had not the knowledge, or possessing it deliberately withheld it so that others would not know as much as they, as was done by Quintus who taught with distinction in Rome during the reign of Hadrian. He attained his celebrity through anatomy, yet published nothing, unlike Marinus and also unlike Numesianus who was already well known in Alexandria during the lifetime of Marinus. Numesianus showed a splendid knowledge of, and wrote many works on, anatomy, though they were not widely distributed.
>
> After his decease, his son Heraclianus wishing to retain the knowledge to himself stopped further distribution and when his death appeared at hand it is alleged he burned them. Heraclianus was one of those who extended to me during my stay in Alexandria the warmest of receptions, giving me entrée to the circle of his closest friends. As a consequence I rendered him the best service of which I was capable, in fact, such service that in spite of my original prejudice I could only be considered a eulogist.
>
> Yet I was not the recipient of the works of Numesianus, though he [apparently Heraclianus] gave me grounds for withholding them. In general he [Heraclianus] was not one of those who had no knowledge or understanding of anatomy. On the contrary he manifested views not dissimilar to those of Satyrus who was one of the pupils best acquainted with the teachings of Quintus.
>
> Pelops, however, though he was considered the most eminent of the scholars of Numesianus never took occasion to discourse or write on their teachings [that is on the teachings of Quintus and Numesianus], for he enjoyed the satisfaction of retaining a certain amount of knowledge to himself. In spite of the fact that he wrote very valuable works, they were burned after his death before copies had been made, since he was accustomed to lock them up in his dwelling and never allowed them to be published.
>
> Some of Pelops' many works on anatomy found in various hands are only elementary treatises he was accustomed to present to his students, to which he added on request when they were about to return home, his Manual of Hippocrates for Beginners, that it might be an aid

in the elucidation of his instruction. These, however, are far from exhaustive, and his actual anatomical teaching was of much wider compass. In the same way the works of Satyrus were far from complete. Since this is true of the writings of Satyrus and Pelops, it is futile to mention the other pupils of Quintus whom I zealously sought out.

Fig 1. Hippocrates Refusing the Riches Offered by Artaxerxes, King of Persia, Choosing Rather to Treat the Poor of Cranon and Thasos as Proudly Related by Galen. (From Figuier.[62])

As is evident from the foregoing, there was a tendency on the part of even eminent teachers to withhold the knowledge of certain discoveries they had personally made so that they might retain this advantage over the pupil. They felt obliged to teach everything already in published books, but what they had learned additional was preserved in their own mind, or if written out was safeguarded under lock and key to be broadcast only after death. Accidents, however, such as conflagrations or failure of heirs to recognize their value sometimes prevented publication, and these discoveries were lost.

In spite of the fact that he was brought up in the midst of this jealous and unworthy secrecy indulged in by many of his teachers, Pelops, Numesianus, Heraclianus and even the renowned Quintus of the previous generation, and hence saw in it nothing inherently wrong, one of Galen's ethical triumphs was its elimination and the extension to all who were anxious to learn of whatever knowledge was gained. His account of this, to us unethical conduct, is interesting and shows his broadmindedness in that he finds no fault when knowledge was withheld even from him, and allows this to interfere in no way with his respect for, or his commendation of, the teacher.

Even the older writers, Hippocrates included, were not adverse to, and favored the withholding of some knowledge, but with the idea of preventing the vulgarization of medicine, that is preventing lay people or students with only a smattering of learning from acting as practitioners. They had in mind also the unworthy who were no sooner graduated than they proceeded to exploit themselves in unethical ways to the debasement of the profession. This was somewhat analogous to our custom of not admitting graduates to membership in certain medical societies till they have shown their uprightness. Time, however, had brought about the withholding of knowledge for the unworthy purpose of advantage.

Later we shall see Galen several times refuse to extend his works to some of the ignorant practitioners in Rome and once even retaining to himself an important discovery. This was about the age of forty-four during his extensive dissections for his great works on anatomy and physiology when he thought he learned how vision is produced. This discovery was so different from the thought of the time that he felt no one would believe or even understand it. Fearing to raise too much of a controversy without result he kept it to himself till warned twice in dreams, thought to be inspired by Aesculapius, that he should give it to the world.

Of course the quack with his secret remedies was just as, or even more, rampant than now. Galen relates numerous instances. The following is typical (XII, 293): A man was afflicted with an abscess of the pharynx (apparently quinsy) of such a nature that he was in danger of suffocation on account of which venesection was done. During the progress of the blood-letting he confessed himself willing to submit to any remedy which showed prospects of results. A certain man claiming he had a specific was called in, and he applied it in the form of an ointment with rapid cure.

The patient was both wealthy and of philanthropic turn of mind, and desiring the remedy for future use for himself and those in like straits he asked its price. This having been agreed on, the vendor said that it acted by antipathy, and that this antipathy existed only when the individual treated did not know its composition. He was willing, however, to give it to one of the patient's friends, provided he swore not to divulge it until both he (the quack) and the patient were dead. On this occurrence the friend told me the composition. It was dried dung of a boy mixed with Attic honey. The boy whose dung was taken was on a special diet composed of hops, a particular kind of bread and old wine. Further he claimed he had experimented with other diets, but the dung was not successful.

Though Galen was opposed to, in fact expressed detestation of, medication of this character, that is to the use of human excretory products, he was sufficiently credulous following the cure to think the remedy might have had some effect. This credulity was partly the result of the influence of the Empirics and the Methodologists, the former depending entirely on experience, the latter asserting that when disease occurred nature did nothing to cure it, and without the doctor, or at least without his remedy, the patient would surely die. Inoculated with some of Hippocrates' belief in nature's restorative power, Galen recognized that numerous patients would get well even if not treated. There were, however, so many Methodologists insisting on their point of view and so many Empirics insisting that cure proved the potency of the drug, that like ourselves he sometimes wavered between what he believed and the assertions of the multitude. It is also true that he mentions in his Materia Medica innumerable medicaments in which he has little or no faith, because he wishes to show himself without prejudice.

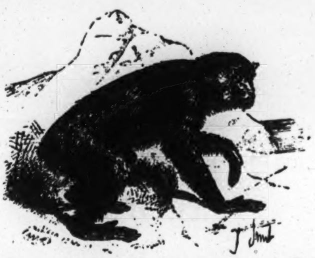

Fig. 2. Barbary Ape (*Inuus ecaudatus*) Commonly Employed in Teaching Dissection on Account of Almost Human Distribution of Its Muscles and Other Structures.

Recognizing Galen's industry throughout life, and knowing that his income was limited, it is possible that his position as assistant to Heraclianus paid a small salary, but probably not more than analogous positions pay a young graduate today, when they are looked upon as stepping stones to further knowledge and advancement rather than as a means of livelihood. In any case it is quite evident he did several years anatomical work in association with this master which aided him in his later brilliant discoveries.

Among these are the platysma myoides muscle, the superior palpebral, buccinator, palmaris, plantaris and the interossei of the hands and feet. The skill required to demonstrate the platysma, even when we know of its existence, is evidence of Galen's proficiency with the knife and makes it not unlikely that one of his duties was that of prosector. Possibly also he did a small amount of teaching. The shaving as well as other preparation of the animals employed in the anatomical demonstrations was in the hands of slaves or students.

We are to imagine an anatomical room with Barbary and other apes and animals as the subjects since it was unlawful to dissect human bodies. Yet opportunity for their study was not entirely wanting. We learn from Galen that on display in Alexandria, though apparently nowhere else in the Empire, was a complete human skeleton giving occasion to perfect the pupils' osteology, and correct or improve their muscular and organic anatomy.

"In the study of osteology," he tells his students in Rome (II, 220) "it is advisable not only to follow books, but to examine carefully the human skeleton. This subject is less difficult in Alexandria where they exhibit a skeleton while teaching. Hence it is worth while going there for this purpose alone." Needless to say with a human skeleton before one and the muscles, blood vessels and nerves of an anthropoid ape exposed by the knife, it was an easy matter to place them accurately in the human body.

He continues:

> Even apart from the class-room, it is possible to see, as I often did, skeletons in graves and in monuments. Sometimes the overflow of the Nile washes bodies from the former buried without much care months before, and thrown hither and thither the putrefied flesh is stripped off while the skeleton is left intact. We also saw the skeleton of a brigand lying on the mountain side just off the road

> killed by a traveler in self defense. No one wishing to bury him, but on the contrary rejoicing to see him devoured by birds of prey, the bones had been picked dry and thus left for inspection. If nothing like this happens to you, you can at least remove the flesh from an ape and study its bones. Naturally you will choose one as similar as possible to man. . . . Instructed in this way if you later fall on a human skeleton you will easily recognize the different parts.

Twenty years later (172 A.D.) a band of brigands known as the Herdsmen (the Bucolici, not far from Alexandria) became so bold that Marcus Aurelius was obliged to send against them the Asiatic contingent of the Imperial Army. Whether they were operating during Galen's sojourn is unknown, though robber chiefs and their activities were common everywhere.

It is also evident from his knowledge of human pathology that he or at least his teachers had the opportunity to observe not only skeletons and decomposed bodies, but occasionally even fresh ones. For instance in his treatment of pulmonary consumption[6] he states (x, 373):

> I cured all cases I saw on the first day of the hemoptysis, but only some after two or three days. Of those manifesting inflammation as shown by fever, none was perfectly cured, yet when after treatment the ulcer became dry and indurated with callus [fibrous tissue] and increased no further in size they lived a long time. This induration of the ulcer prevents it from healing, but also aids in preventing its spread.
>
> When the pulmonary ulcer is the result of erosion through corrupt bodily humors [that is, arises spontaneously without traumatism in someone evidently ill] it is always incurable. This condition of corrupt humors requires a long time for correction, and in the interim one of two things occurs—either the ulcer becomes indurated, and therefore, incurable, or not drying up sufficiently, it spreads.

It is not possible to imagine this remarkable description without the pathological condition being seen.

Another way extended them of observing human organs was through embalming. In fact the conditions in the lungs just mentioned may have been studied in Alexandria where consumptive patients were frequently sent from Rome for climatic treatment and some of them surely dying the bodies must have been embalmed before return. In this process the brain was usually removed through the nose and hence was destroyed, but the lungs, liver, stomach and intestines were removed through an incision in the side, pickled and then restored to the body. How much study was allowed to be made of these organs is unknown, but it would seem as if acquaintanceship with one of the many professional embalmers in the neighborhood of the Egyptian Cemetery might give at least some opportunity. His statement about examining skeletons from graves and even from monuments supports this conclusion. The fact that the heart was left in place tends to explain their lack of knowledge of its pathology, the popular idea being that it was so necessary to existence, it had been created insusceptible to disease.

The assertion that Heraclianus was "one of those" who extended to him a cordial reception definitely indicates there were others, hence work and social relations were established at once. That some of his studies were under Numesianus himself is evident from his statement (II, 217):

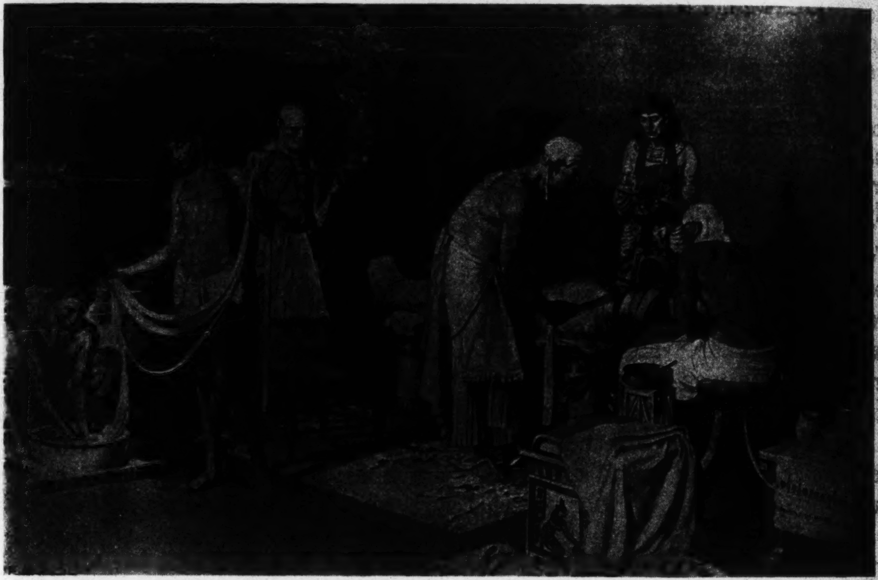

Fig. 3. Preparation of a Mummy. The Brain Was Usually Removed through the Nose and Hence Was Destroyed; the Lungs, Liver, Stomach and Intestines Were Removed through an Incision in the Side, Pickled and Later Returned. The Body Was Placed in a Bath of Sodium Carbonate for Seventy Days, Swathed in Four or Five Layers of Linen Bands Moistened with Aromatic Gum and Wound Skilfully to the Form. A Mask Resembling the Features Was Placed on the Covered Face. Though This Drawing Depicts a Scene Long before Galen's Time, It Is Possible Some of His Pathological Knowledge Was Derived from Seeing the Lungs and Other Organs in Connection with the Contemporaneous Process of Embalming. (From Smith.[63])

> Following this [the sojourn in Smyrna] I went to Corinth to become the pupil of Numesianus, the most celebrated living pupil of Quintus, and to Alexandria and among certain other races (ἔθνεσι) where I heard Numesianus, the famous disciple of Quintus discourse.

What is meant by "among certain other races" is unknown, unless it refers to travels up the Nile on which he accompanied him. If so this would probably mean a journey to Memphis with its temple to Ptah Imhotep, the Egyptian Aesculapius, and possibly even to Thebes and Syene. Galen assures us (xvii$_2$, 155) that he visited all of Egypt, and with his love of travel, and his desire to follow in the footsteps of Hippocrates, this is no surprise, especially when we recall that he remained several years which would include a corresponding number of vacations. That he held the great Coan constantly before his eyes as a model to be imitated is confirmed by an address to students about ten years later in Rome (1, 57) in which he thus expresses himself:

> Are we able in our epoch to point out a man so detached from the pursuit of gold that he is contented with what satisfies the indispensable needs of the body? Are we able to ferret out one who not merely teaches by his discourses, but demonstrates by his life that the only purpose of money is to avoid hunger, thirst and cold? If such a physician is discovered we will find him, like Hippocrates, disdaining the favors of Artaxerxes and of Perdiccas.
>
> He will decline the invitation of the former, and will treat the latter when ill, but will refuse his request to remain at court preferring to return to Cranon, to Thasos, and similar towns to care for

the poor. He will leave at Cos among his compatriots, his son-in-law Polybus and his other disciples, while he, himself, travels throughout Greece to learn the nature of the places. To verify by personal experience what reason has taught him he will visit cities in the south, north, east and west, in the valley, and on the mountain top.

He will examine the drinking water and its source of origin: Rain water, spring water, the water of rivers and marshes. He will not neglect to inform himself if the inhabitants drink very cold or very warm water, or that containing soda, iron or other minerals,—in fact, he will study all the conditions connected with cities and their inhabitants about which Hippocrates has instructed us. In this fashion will such a physician neglect riches and devote himself to his work.

Artaxerxes was the King of Persia who in vain offered Hippocrates riches if he would come to his court: Perdiccas, the King of Macedon whom Hippocrates treated when ill, but whose invitation to remain he refused. In his imitation of Hippocrates we shall later find Galen declining an important invitation of the Emperor Marcus Aurelius, the autocratic ruler of an Empire much greater than that of Artaxerxes or Perdiccas, because it would interfere with the research and the writing he had in mind.

We shall have descriptions from his own pen of travels wide, and sometimes laborious, for the sake of studying places, peoples and diseases, and for the sake of collecting drugs in their native habitat and obtaining the local knowledge concerning them. With his interest in the Egyptians, renowned for medical knowledge even as far back as Homer who lauds them, and remaining the length of time he did, it is impossible to imagine he neglected any part of the country.

He tells us that the climate of Egypt is warm and dry (XVII$_2$, 597). The natives have black, dry, crisp, fragile hair (I, 618), are of slender build (XI, 514), but are endowed with a hardy constitution (XIII, 662). Yet they are unable to stand venesection to the same extent as inhabitants of more temperate climes (I, 90). The water they drink is cold, and is kept so in the following way (XVII$_2$, 155, 182): They have a special jar made of pottery, which allows of rapid evaporation. At sun-down filling it with water previously boiled they place it on a window sill on the side of the wind throughout the night, and before sunrise put it in a trench in the ground surrounded by wet leaves. The water remains pleasantly cold throughout the day. In Egypt even the swamp water is potable (XVI, 363) being the only salubrious swamp water he ever came across. This pottery jar was still being made at Keneh on the Nile at the time of the author's visit in 1910.

In connection with foodstuffs he relates that the poor of certain localities eat their draught animals when too old to work: the horse, the ass and the camel, and in Egypt and several other countries even wood worms, vipers and serpents, though he never tried them (VI, 668). The lower classes were seemingly as insensitive to the disagreeable as they are today, for as now they employ the very odoriferous goats' dung as a fuel for cooking, then they used castor oil not only as a laxative, but in spite of its odor, for illumination and for anointing the body.[7] The higher classes used sesame oil for illumination and this and olive oil for unguents. It is interesting to note that the same oil we use for illumination, petroleum, we also use, though in a further refined state, as a laxative and for ointments.

He further informs us (XI, 142):

> At Alexandria elephantiasis is common on account of the habits of life and the hot climate. In Germany and Mysia (the Province containing Pergamum) it is rare, and among the Scythians who drink milk freely is almost never seen. In Alexandria the inhabitants eat more boiled farina, lentils, snails and salt fish. Some even eat the flesh of asses and similar animals thus engendering black bile which on account of the heat of the surrounding air is carried to the skin.

He gives us a most interesting reminiscence of a confrere apparently working his way through school as a caretaker or janitor in a public building in which he had living quarters, but without the privilege of cooking. This runs as follows (VI, 539):

> I was acquainted with a medical student in Alexandria who took as food every day over four years [apparently the regulation number for a medical course] cold kidney beans, fenugreek, lentils and wolf beans. He sometimes added olives from Memphis, oil, and several fruits capable of being eaten without cooking, for he occupied an apartment in which fire was prohibited. He sometimes ate the beans or fruits [in the form of a salad] with oil, vinegar and salt. He remained healthy all these years with no deterioration of physical condition.

He relates several cases of snakebite, one or more seen in Egypt with successful termination. The following are typical (VIII, 197): "When I was in Alexandria a peasant from nearby was bit on the finger by an asp. Binding it at the root near the metacarpus and running to his usual physician in the city, he had him amputate the finger at the metacarpal joint in the hope thus to avoid serious results and with no other treatment his hope was realized." Unfortunately Galen mars this perfect report by the next in which he describes another patient bitten on the finger by a snake cured by taking a mixture containing snake's flesh after amputation of the finger. It is likely, however, that in the first the ligation was sufficiently early that no venom reached the body and hence no symptoms followed the removal of the finger, while in the second, ligation not being done, or done late, constitutional effects were seen even after amputation, and these appeared to be cured by the remedy.

Among the medicaments from, or coming through Egypt, which he employed were gum arabic, pomegranate on account of its tannic acid content, the Egyptian bean (seed of the water lily, *Nymphaea nelumbo*) which was so well-known over the world that Galen used its size to indicate the amount of the theriac to be taken at a dose, castor oil, colocynth, saffron and the two very expensive laxatives, cassia and incense. Speaking of drugs he asserts (XI, 792) that the pharmacologist Pamphilus was addicted to old women's fables, and the crazy nonsense of the Egyptians who insist on incantations when plants are gathered. In agreement with Hippocrates' first aphorism that "life is short and art long" Galen contends "we have not time to waste on such nonsense, and must hasten to the useful." Among the diseases of Egypt he mentions particularly elephantiasis, dysentery and ophthalmias.

The interest in Egypt has been perennial and identical, and a short journey inland on camels, or up the Nile took the traveler from the bustling Capital to the awesome silence of dateless antiquity. No one ever tired hearing of the pyramids, the labyrinth, the tombs of the Kings and the fairyland of its fascinating river. Its colossal and ancient monuments seem to have existed forever; the gigantic temples, the endless rock passages and caves, the forests of colossi and sphinxes, the countless brilliant pictures and the mysterious walls of hieroglyphics. Its hoary years made Asia Minor, Greece and Rome seem ephemeral, and its fossilized marvels and fabulous secrets stared living modernity out of face. The Nile itself, the sacred stream reverenced as a god, was viewed with awe and even the flora and fauna impressed the imagination, waters grown over with white lotuses, the papyrus, the palm, the crocodile, the hippopotamus and the ibis.

Every student, business man and tourist went at least as far as Memphis to see the pyramids, the majority to Thebes to visit the tombs of the kings and many to Syene for the summer solstice when the sun immediately overhead cast no shadow. The perpetual invalid, the well-known Smyrniote rhetorician Aristides with whom Galen was almost surely acquainted, made four journeys to Egypt and states that he left no site unvisited.[8] We are confident the Pergamite likewise missed but little.

In spite of his difficulties in procuring the writings of Numesianus, his opinion of this teacher remained high, and he lauds even when obliged to disagree with him. For instance, in his Commentaries on Hippocrates' book on Humors, written about the age of forty-seven, and re-edited after the age of sixty-three, he states (XVI, 196):

> Artemidorus and Numesianus interpreting Hippocrates give an explanation of the word decubitus (ϵῤῥίψις) which is absurd and ridiculous. I am not surprised at Artemidorus, whose errors are frequent, but I am at the learned and careful Numesianus for whom I have great admiration and who always had his wits about him."

Another teacher, quite the opposite of Numesianus, under whom he enrolled was the Thessalian-Methodologist Julian, a fluent talker and facile writer, but lacking in general education and judgment. As stated previously, there were four prominent medical sects: Dogmatism, Empiricism, Methodology and Pneumatism. The first two had been founded in the East after the death of Hippocrates (377 B.C.), the last two much later in Rome (in fact about 50 B.C. and 50 A.D. respectively) and had fewer adherents elsewhere. All demanded high preliminary education and some even four years of medical studies.[9]

Still later (about 60 A.D.) the charlatan Thessalus founded in the Imperial Capital a reformed Methodological school in which he undertook to teach anybody even with no preliminary education everything necessary for the practice of medicine in six months. Deliberately contradicting (I, 82) Hippocrates whom he ridiculed he insisted that "art is short and life is long." Lacking our careful licensing, he developed a larger following than even similar quackish schools today, in fact, judging from a tirade of Galen (XVIII$_1$, 247) it would seem that he displaced almost if not quite entirely the old more reputable Methodological school. That Julian was one of his followers is concluded from Galen's classification of him (XVIII$_1$, 274) with the "herd of Thessalian Asses."

[*To* Be *Continued*]

ROZIERE DE LA CHASSAGNE

AND THE EARLY HISTORY OF PERCUSSION OF THE THORAX

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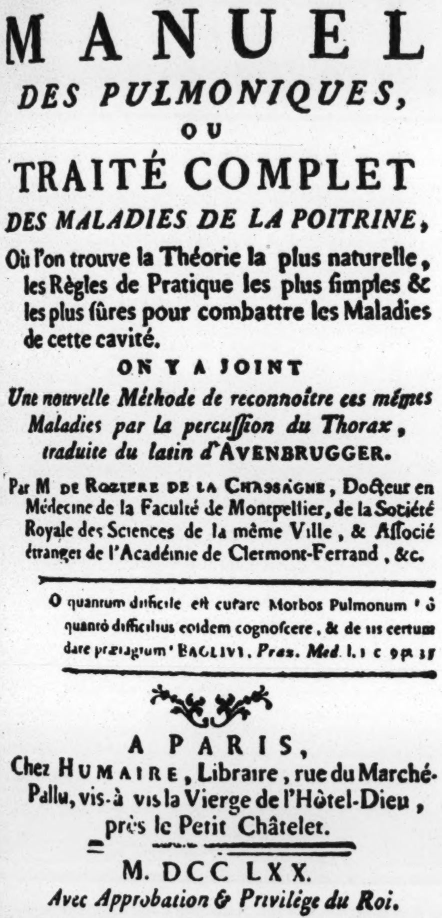
THE early history of percussion of the thorax has often been told, and the essential facts are accessible. In brief, there is the seven years' work of Leopold Auenbrugger, and the publication, early in 1761, of a book of ninety-five pages entitled: "Inventum novum ex percussione thoracis humani ut signo abstrusos interni pectoris morbos detegendi." An impression with "errata" and "corrige" was issued in the same year, and another edition in 1763 almost identical with the corrected one of 1761. The failure of the author to follow up the rich lead he had discovered, in the nearly fifty years ahead of him, is quite as strange and unexplained as the fact that although some of the considerable number who noticed the work in medical and other periodicals spoke well of it, not one gave any evidence of continued interest in the subject until Corvisart did. When we think of a few contemporaries whose minds were otherwise open, we have to take refuge in the statement that Auenbrugger was half a century ahead of his time.

He and his discovery were thoroughly discussed in 1909, when the centenary of his death was observed, and without eliciting any essentially new facts. Almost twenty years later, Dr. Ronald S. Crane discovered the remarkable review of the "Inventum novum," printed in an English periodical August 27, 1761. By clever literary detective work Dr. Crane traced the authorship of the review to Oliver Goldsmith, and published it with other previously unrecognized essays of the great English writer.[1] It was made known to medical readers by Dr. Henry S. Viets soon after[2] and I shall refer to it again.

Not much less complete is the oblivion surrounding the first translation of the "Inventum novum" into French, in 1770. The author was M. de Roziere de la Chassagne, Doctor of Medicine of the Faculty of Montpellier, etc. (see Fig. 1). As the title page shows, the translation of Auenbrugger was printed as a sequel or appendix to a compend on diseases of the chest. This book seems always to have been rare. I acquired a copy in 1907, while forming a collection of early texts on physical diagnosis. It is rarely offered for sale, and then at prices equal to those of the works of Corvisart and Laënnec, or even more. There is a copy in the Library of the Surgeon General, U. S. A., and one in the Library of the New York Academy of Medicine. It is not mentioned in the Catalogue or the Supplement of the British Museum.

Neither name of the author can be found in the indexes of manuals of bibliography or in works on the history of medicine. Eloy's four volume "Dictionnaire Historique de la Médecine ancienne et moderne"[3] does not mention him. But he and his works are included, with obvious derivation from Corvisart's preface, in the sections on Auenbrugger in the "Biographie médicale" of the "Dictionnaire des sciences médicales,"[4] the "Dictionnaire historique de la médecine"[5] and the "Biographie médicale" of Bayle and Thillaye.[6]



MANUEL
DES PULMONIQUES,
OU
TRAITÉ COMPLET
DES MALADIES DE LA POITRINE,
Où l'on trouve la Théorie la plus naturelle, les Règles de Pratique les plus ſimples & les plus ſûres pour combattre les Maladies de cette cavité.
ON Y A JOINT
*Une nouvelle Méthode de reconnoître ces mêmes Maladies par la percuſſion du Thorax, traduite du latin d'*AVENBRUGGER.
Par M DE ROZIERE DE LA CHASSAGNE, Docteur en Médecine de la Faculté de Montpellier, de la Société Royale des Sciences de la même Ville, & Aſſocié étranger de l'Académie de Clermont-Ferrand, &c.

O quantum difficile eſt curare Morbos Pulmonum! ô quantò difficilius eoſdem cognoſcere, & de iis certum dare præſagium! BAGLIVI. *Prax. Med.* l. 1 c. 9 p. 35

A PARIS,
Chez HUMAIRE, Libraire, rue du Marché-Pallu, vis-à-vis la Vierge de l'Hôtel-Dieu, près le Petit Châtelet.
M. DCC LXX.
Avec Approbation & Privilège du Roi.

FIG. 1. TITLE-PAGE OF "MANUEL DES PULMONIQUES."

He is not mentioned in modern biographical works, Larousse and the Grand Encyclopédie. Recent French and German medical works down to Max Neuburger are equally negative, or dismiss Roziere's work with truthful but too brief statements.

At the time I obtained my copy, a friend who was studying medieval French in Montpellier tried to find personal data there, but wholly without success. Corvisart put a grave accent on the first e of Roziere, and was followed by most French writers, but there is none on the title page.

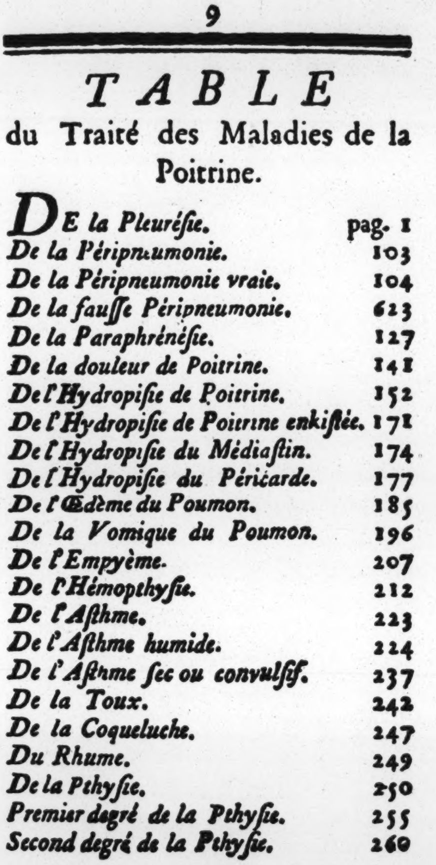


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TABLE
du Traité des Maladies de la Poitrine.

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FIG. 2. FIRST PAGE OF TABLE OF CONTENTS OF THE TRAITÉ.

Some writers spell the name Rosiere, but he is usually called Roziere, or de Roziere, or sometimes la Chassagne. I shall follow the simpler form. The lack of a baptismal name was very common on title-pages and in prefaces at that time.

But Roziere was not entirely ignored by his contemporaries. J. B. Th. Baumes, Professor of Pathology and Nosology in Montpellier, made a reputation by his efforts to found a theory of pathology based on chemistry, and he was recognized also as an able practitioner and author of works on clinical medicine esteemed at the time. Among his productions was a "Traité de la phthisie pulmonaire, connue vulgairement sous le nom de maladie de poitrine," which was crowned by the Royal Society of Medicine of Paris in 1785 and published in 1798. A second edition, in two volumes, was issued in Paris in 1805. In this Baumes refers to Roziere as "a physician of Malzieu." Malzieuville is a small town in Canton Lozère, now a seat of textile manufacture, north of Montpellier, so it would seem that Roziere had moved from the larger city and clinic. Baumes cites a number of passages from the "Manuel des pulmoniques," as on page 465, vol. I, from p. 271 of the Manuel, where it is said that if two women are affected equally with tuberculosis, and one becomes pregnant, she will survive and go to term, but the one not pregnant will die. In 1808 Corvisart published his translation of the "Inventum novum," with extensive commentaries, and made Roziere's work superfluous, even if it had not been so before. In his preface, Corvisart gave Roziere credit for his translation, and also pointed out his shortcomings, as I shall show.

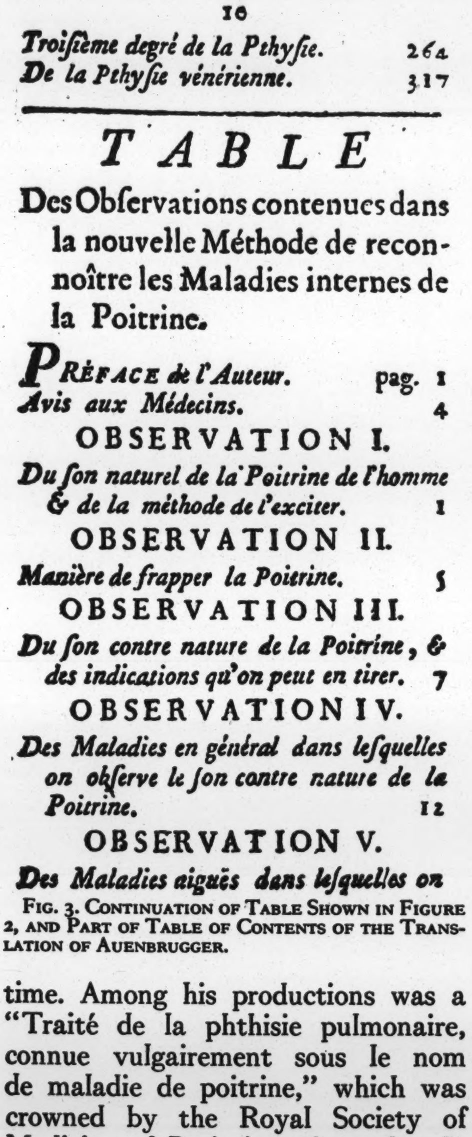

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TABLE

Des Obſervations contenues dans la nouvelle Méthode de reconnoître les Maladies internes de la Poitrine.

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OBSERVATION II.

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OBSERVATION III.

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Des Maladies en général dans leſquelles on obſerve le ſon contre nature de la Poitrine. 12

OBSERVATION V.

Des Maladies aiguës dans leſquelles on

FIG. 3. CONTINUATION OF TABLE SHOWN IN FIGURE 2, AND PART OF TABLE OF CONTENTS OF THE TRANSLATION OF AUENBRUGGER.

The next mention I find is in the "Dictionnaire des sciences médicales," edited by a society of physicians and surgeons, which appeared in Paris from 1812 to 1822, and formed a landmark in encyclopedic medical literature. The list of collaborators includes many illustrious names, and many articles are of great interest. The section on percussion in tome 40, 1819, introduces Auenbrugger (p. 288) and says that the "Inventum novum" "was translated into French by Roziere de la Chassagne, physician of the faculty of medicine of Montpellier, after his Manuel des pulmoniques." A few lines later it is said that "in France the work of Chassagne apparently did not make a great sensation," and a note in the Bibliography (p. 305) says Roziere's Manuel, "become very rare, contains (p. 185) a well-made chapter on edema of the lung, a disease that Laënnec (see Pectoriloque) believes undescribed." "Pectoriloque" was one of the names Laënnec gave his "cylindre," before he definitely adopted "stethoscope."

Laënnec did not mention Roziere in either of the two editions of his works prepared during his lifetime. L. Maillot, in his concise and comprehensive "Histoire de la percussion,"[7] refers to the silence about both Auenbrugger and Roziere, saying that a discovery so important as that of percussion could not wait long without becoming known beyond the country of its author. "Soon, in fact, Roziere de la Chassagne gave a translation. No one read that work, therefore the discovery of the Viennese physician remained unknown in France." As I have not been able to find an adequate account of Roziere's works, I shall try to give one based upon my own examination, beginning with the physical makeup of the book.

My copy is half-bound, with board sides, covered with mottled brown paper, vellum corners, and calf back with gold title and ornaments. The title reads; "De Roziere/Manuel/des/Pulmoniques." The pages are cut, and measure 16.4 by 9.6 cm. The type columns measure 12 cm. or 12.4 cm. by 6.2 cm. The variation depends on the number of lines. Twenty-nine is the usual number, where there are no footnotes, but there are a few pages with thirty lines, with no apparent reason. There are 12, 319, 1, and 62 pages, more accurately described below. Paper, type, printing and proofreading are mediocre. The water lines are horizontal except in the first few pages. The "gathers" alternate regularly, eight and sixteen pages. Whole sheets have four signatures, A, Aii, Aiii and Aiv, etc., half sheets two. The signatures are near the right edges of the respective pages. There is a catchword or syllable on the last page of each gather. The heading "Traité des Maladies / de la Poitrine," in italics, is divided between the facing pages, and continues through both parts of the volume. Economy of paper is very striking. There is no half-title, so common in French books of the time. On the verso of the first title-page is a list of medical books on sale in the "même libraire," viz.:

Traité des Vapeurs & des Pertes de Sang 1 vol. in-12.

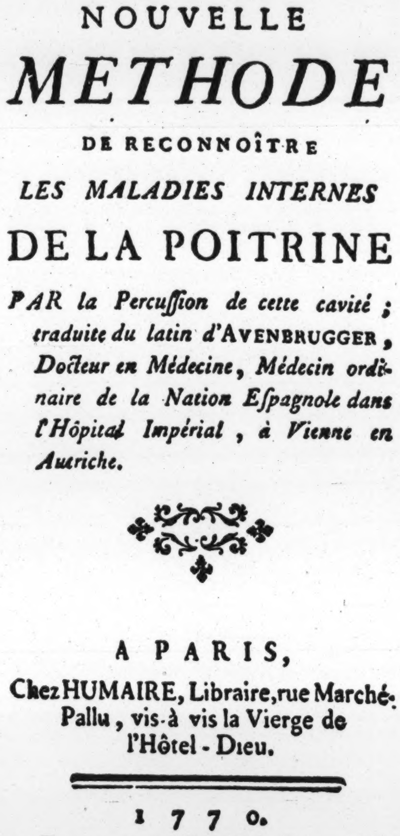
Traité de la Digestion dans lequel on expose, selon les loix de la plus saine Physique, le méchanisme de cette importante fonction, avec une méthode de remedier aux différents fonctions qui peuvent la troubler, autorisée par la raison & l'expérience, in-12 2 vol.

Avis aux gens de Lettres sur leur santé, par M. Tissot, in-12.

Traité de toutes les espèces de colique 1 vol in-12.

Secret utiles & éprouvés dans la pratique de la Médecine & de la Chirurgie pour conserver la santé & prolonger la vie, avec un appendix sur les maladies des Chevaux, & le Manuel de Médecine, tirés des Ouvrages d'Hippocrate & de Celse: Ouvrage utile à tous Chirurgiens, Curés & habitans de la campagne. / *Et autres.*

Following six pages of preface is a "Table du Traité des Maladies de la Poitrine," which runs over in two lines on the next page. With only a ruled line between them, the Table of Contents of the translation from Auenbrugger follows, with the statement that it is the "Table / Des Observations contenues dans / la nouvelle Méthode de recon- / noître les Maladies internes de / la Poitrine." Without a blank page comes the beginning of the "Traité des maladies de la poitrine," with new pagination and the signature A. The subsequent chapters follow as closely as possible, and not more than the space of two lines is left blank, or has a small ornamental figure at the end of the section. The Manuel ends on p. 319, and the verso is blank. Then comes the title page of the "Nouvelle Méthode" (Fig. 4) its verso blank, then the author's preface, with the signature aii. The next leaf has the same signature in smaller type, the next A iv. On the latter the text of the translation begins. It ends on p. 59, but the figures are transposed and the 9 inverted, so that it looks like 65. Under FIN. on this page is the signature F. On the next page, numbered 58 again, is the "Approbation," the ms. having been read by Lassone, by the order of the Chancellor, with the statement that "the two works contain interesting observations and remarks," and adding that "the Impression can only be useful." This is dated 20 Fev. 1769. It is followed by the "Privilege du Roi," dated 15th and 17th Nov., 1769, signed Le Begue, and by Briasson, Syndic. This is on the page numbered 60, which should be 62. On p. 59, really 61, all lines below the seventh are crooked.



NOUVELLE

METHODE

DE RECONNOÎTRE

LES MALADIES INTERNES

DE LA POITRINE

PAR la Percuſſion de cette cavité ;
traduite du latin d'AVENBRUGGER,
Docteur en Médecine, Médecin ordinaire de la Nation Eſpagnole dans
l'Hôpital Impérial, à Vienne en
Autriche.

◆

A PARIS,
Chez HUMAIRE, Libraire, rue Marché-Pallu, vis-à vis la Vierge de
l'Hôtel-Dieu.

1770.

FIG. 4. TITLE-PAGE OF ROZIERE'S TRANSLATION OF "INVENTUM NOVUM."

A minute analysis of the Manuel would interest only those familiar with eighteenth century medicine, who would probably prefer the original. Corvisart criticized the title "Manuel des pulmoniques" on the ground that pulmoniques, in general parlance and in common medical usage, means patients with pulmonary phthisis, or in modern slang "lungers," and that a "manuel des pulmoniques" could never be a "traité complet des maladies de la poitrine," as the sub-title has it. Littré seems to agree with Corvisart, but the Dictionnaire de l'Académie française"[8] gives less limited definitions. Hatzfeld, Darmesteter and Thomas also give a general meaning, although they quote the examples cited by Littré, from Saint Simon and La Bruyére.

In the preface Roziere says that his book is not based on theories elaborated in the cabinet, far from the sick-bed, but upon experience, adding that physicians who argue the most cure the least. Figure 2 gives a better idea of the author's scheme than would a verbal description, and shows that the chief work is a treatise or compend of diseases of the lungs and pleura, and of some symptoms viewed as diseases. One is struck at once by the apparent disproportion of the space given to pleurisy, and might think the author had merely sketched out the later chapters, but the text does not bear this out. Roziere says that next to fevers inflammatory diseases of the chest are most numerous in practice, and that it has been said, by M. Razoux of Nimes, that pleurisy and peripneumonia furnish one-tenth of hospital practice. At that time, and for many years more, pneumonia and pleurisy were not distinguished anatomically, the symptoms were confused, and the text shows that under the definition of pleurisy one could include not only simple pleurisy but also empyema and not a few cases of pneumonia, with or without pleurisy.

A few extracts may be given to make clearer the style of the work. Pleurisy, says the author, is one of the few diseases that can be defined. The symptoms that accompany it, or rather, constitute it, are so constant that all authors mention them. They are: fever, hard pulse, dyspnea, cough, and sharp pain in the side. Distinctions are made between true and false pleurisy, the latter sometimes, no doubt, intercostal neuralgia. Moist and dry pleurisy are distinguished by the sputum of the former. Essential and symptomatic pleurisies must be recognized. Symptomatic cases include various painful conditions, as inflammation of the liver. Among the numerous causes of pleurisy is rattlesnake bite, against which the Americans have a sure remedy, viz., Poligala, or Virginia snake-root, which, however, is not effective in Europe. Another cause, not sufficiently recognized by practitioners, is the abuse of the corset, against which ridiculous habit, the result of an extravagant taste, physicians and philosophers have warmly declaimed. "One wishes to get a fine waist, but gets a deformed body." He refers to a case reported by himself of pleurisy or peripneumonia following imprudent administration of corrosive sublimate (p. 16). The best guide to the condition of the patient in pleurisy is the pulse, and the best treatment bleeding. The public is so accustomed to the latter that a physician who fails to bleed as soon as called to a patient with pleurisy, would lose his reputation. A prominent physician is mentioned who bled a patient fourteen times in ten days. On the next day the pain was worse, respiration more embarrassed; anxiety cruel; face flushed and becoming livid; pulse small, weak, and greatly accelerated. "What a pity," said the doctor, "there's not enough blood for the fifteenth bleeding." Exitus two days later. The space given to treatment is more than half the total of the section, as in most of the others, and includes about everything tried from the beginning of recorded medicine, with very little discrimination.

Peripneumonia, true and false, has twenty-four pages. Phthisis, under the name pthysie, with synonyms tabes, etysie and consumption, has sixty-six pages. It is said to be the premier malady in the chest, as much from the number of victims as from the difficulty of curing them. Venereal phthisis ends the book, with a little more than two pages, and is said to be more frequent than supposed, and least dangerous, as it can be cured by mercury even when far advanced.

The reference to edema of the lungs, and the relative desert of Roziere and Laënnec, requires an explanation. The article on "Pectoriloque," already mentioned, says that Laënnec stated edema of the lung had not been described although well known to those who made autopsies, and gives Laënnec credit for bringing forward new signs, especially diminished respiratory murmur with crepitant râles. As a matter of fact, Laënnec was not so sweeping in his statement, but said edema of the lung was "tres peu connue." His article is very modern, and in strong contrast to Roziere. The latter said that authors confuse edema and hydrothorax, and he made a plea for more observations in lung disease, but did not add anything to the diagnostic measures to be used, and by discussing hydatid cysts in connection with edema, confused the whole subject. He quoted the same authors Laënnec did, but by failing to apply the lessons of the "Inventum novum," he lost a rare opportunity.

The work is obviously a compilation, but it shows diligence in citing authors from Hippocrates down to the time of publication. More than a dozen English authors are each quoted many times. Morgagni's "Seats and Causes of Diseases" is cited several times, but the most important author for the purpose, Auenbrugger, is conspicuous by his absence. This is all the more striking on account of the inclusion of the translation of the "Inventum novum" with the "Manuel des pulmoniques." The chief virtue of the latter is its brevity, and it can be recommended as a good example of thoracic pathology and therapeutics just before the beginning of the era of pathological anatomy and physical diagnosis.

Roziere seems to have had a sufficient literary preparation to undertake the translation of a Latin treatise relating to thoracic disease, but he had not shown, nine years after the appearance of Auenbrugger's work, an interest in applying the new method to his own special subject, diseases of the chest. Corvisart throws a light on the complete unconsciousness of percussion at that time in France. In the translator's preface to his own translation of the "Inventum novum,"[9] he tells us (p. XI) that when Roziere's work appeared, which was about the time he began the study of medicine, he had never heard the name of Auenbrugger. As a student he never saw physicians in hospitals use percussion of the thorax, nor did he ever see it used in private practice. He himself got the first suggestion from reading the works of Stoll, and from that time on he never failed to apply percussion in obscure or doubtful cases of thoracic disease, and there it never failed him. He abstained from a comparison of his own translation with the older one, leaving that to "the reader with leisure, who would find it more tiresome than important." He very properly emphasized the value of the Commentaries he incorporated with his translation. These were based on a longer experience than Auenbrugger's, twenty years, at least, as against seven, and gathered in the presence of pupils, often numerous, from living patients and post mortem. Even at this late day those commentaries can not be too highly praised. They are often tedious, because, as Corvisart admitted, he had not found time to revise them. "Begun a hundred times, abandoned as often, my many duties prevented." After devoting much time to the text and a careful comparison of both translations with the original, I agree with most of those who have expressed themselves on the subject, that without such enthusiasm as Corvisart gave, and without his critical confirmation and expansion of the "Inventum novem," that work of genius would have had to wait indefinitely for application in practice.

We get the first suggestion about Roziere's interest in the preface to the Manuel, where (p. 6) he says:

> Having learned that a German physician had published a new method for showing the existence and seats of diseases of the chest by percussing that cavity, I procured the work, a translation of which appears at the end of this volume. But no one should imagine that I give full confidence to the author's doctrine; it seems to be another method we can use without risk. . . . I have not tested it, and there are not many hospital physicians who are in a position to make such a trial. I consider myself happy if the public approves of my zeal, still more so, to be the first to announce a useful discovery to physicians in my own country.

Not satisfied with this faint praise, he went on to disclose how little he understood of the discovery. "Mr. Avenbrugger," he said (p. 7), "has not the merit of inventing the method of which I speak. This is recorded in the divine book of Coan Prognostics (Foes. Praenot. Coact. p. 423). Hypocrate had used it in the course of his practice," and he quoted the Latin translation of the passage in Hippocrates. He acknowledged his obligation to Auenbrugger for reviving a method doubtless important, and said that the German observer will share the glory of the Coan practitioner. To add to the mystification, Roziere added in a footnote (p. 8) that the Hippocratic procedure was not the same as that of Auenbrugger. "The former shook the patient, taking him by the shoulders, the latter was content to percuss the thorax. . . . The change appears advantageous; it makes the method gentler and less perilous. Besides, no matter how we carry out succusion, one can see there will be no difference in the results." Corvisart criticized this passage, saying with truth it was difficult to argue worse or to conclude more falsely.

Curiously, he slipped into another error. Saying that Hippocratic succusion had fallen, not into oblivion, but into absolute desuetude, he added that the reason was plain,—it is difficult to practice, and yet he added a better reason, that suitable cases are rare. It is unnecessary to enter the history of succussion, especially as it is inextricably bound up with dubious or spurious passages in the Hippocratic writings. But Roziere was not alone in his ignorance, which was shared by very worthy Germans, such as Vogel, Professor of Medicine in Goettingen, when Latin was constantly used in lecture room and clinic.

A study of a translation of Auenbrugger calls for a general idea of the plan and method of the "Inventum novum." The author had two distinct tasks, bound together. First, to make known the acoustic phenomena elicited by percussion of the chest, and their application to diagnosis. Second, to increase knowledge of the anatomical changes in thoracic disease, and their relation to percussion findings. He put his ideas in an unusual form, and in contrast with most books of the time. The cardinal conclusions were expressed in forty-eight Sections, indicated by the conventional mark, with Roman numerals. Sections usually have one paragraph but may have many. A section is usually followed by a "scholium," late Latin expression for an explanatory note or interpretation. This also may be short or long, and broken into paragraphs. The separate paragraphs may or may not be numbered. If so, they have Arabic figures and Latin affixes, Imo, 2do, 3tio, etc. Sections and scholia are arranged in groups, called Observations, fourteen in all, also with Roman numbers. They follow a systematic or logical arrangement, beginning with normal conditions, and running through all known varieties of thoracic disease, ending with "aneurism" (dilatation) of the heart.

Up to Observation vi, the sections are usually clear and aphoristic, and the explanations relatively brief. For example, Section i is the most concise, and might be taken from an international language: "Thorax sani hominis sonat, si percutitur" (the thorax of a healthy man sounds when struck). Corvisart criticized the wording, pointing out that the sentence should begin "thorax sanus," but in the early stage of the work such an error was of minor importance. The scholium is a brief description of the external chest in a healthy man. Next come descriptions of the sound caused by the author's technique of direct percussion with the gloved finger tips (the patient's chest being covered by a shirt) on various parts of the chest; in persons of different figure and degree of muscular and fat development, in various postures and phases of respiration. The unconvinced are advised to make a trial on their own bodies followed by constant practice on all sorts of subjects. How the unconvinced could read Section xiv and not try to prove or disprove it at the bedside is difficult to understand: "If the thorax, percussed in a part normally resonant, is without its natural resonance but gives the sound of flesh percussed, there is disease concealed in the part that sounds so." In Section xvii he mentions percussion of (wine) casks, which, when empty, are resonant but lose resonance in proportion to the lessened amount of air in them. In Section xviii he says that if the resonant thorax of a cadaver be filled with fluid through a syringe, the resonance will be dulled as high up in the side as the fluid extends.

Auenbrugger's terminology for percussion was simple, and as we know it now, too simple in view of the novelty of the subject. In Section iii the percussion over the upper part of the sternum is said to give a "clear" (Lat. *clare*) sound. Below the clavicles, and especially in thin subjects, the sound is "clearer" (*clarior*); over fleshy parts "dull" (*obtusior*); on very fat persons "almost smothered" (*suffocatus*); over the mammae "duller" (*obscurior*). A table shows how the early readers interpreted Auenbrugger. It is taken from the scholium of Section x, in which the author named "preternatural sounds."

Auenbrugger	altior	profundior
	clarior	obscurior
Roziere	élevé	profond
	clair	obscur
Corvisart	superficiel	profond
	clair	obscur

Corvisart criticized Roziere's rendition many times, but he admitted much difficulty, and some of his terms, especially "superficiel" and "leger," where Roziere used "élevé," seem incorrect to me. Auenbrugger had not only the recollection of sounding his father's wine-casks, but he had also had musical training, which must have influenced his choice of words. I do not know whether Roziere and Corvisart were musical. The former never tried to correct his verbal conceptions by practice on the body, and in fact did not recognize his ignorance. Corvisart recognized his difficulty and tried to clarify his language by practice in the clinic and autopsy room. The next translator, Forbes, omitted all "hard" words. When we remember that it took more than a century after Corvisart, and the labor of very many critical investigators to bring definite results, we may be grateful for what the beginners did, especially Corvisart. Nor should we forget that their direct percussion was less easy than the mediate or plessimetric percussion begun by Piorry and improved by Skoda. It may be added here that Corvisart did away with the shirt and gloves of Auenbrugger, and that he was aware of the feeling of resistance in percussion, and used it as a routine.

After the twentieth section, as Auenbrugger took up percussion in pathological conditions, the clearness begins to fail and the explanations are often prolix and involved. A new style of subject heading is introduced, with large capitals, where the old Observations would seem to furnish better guides. The difficulty depends on Auenbrugger's inability to combine objective descriptions of morbid anatomy with relics of humoral pathology, such as "tenuous fluids," "relaxed and debilitated vessels," "plethora and over-activity of the circulation," etc. Other theories, like that of critical days (Section XXII) intrude themselves. Discussion of "Scirrhus" occupies a large space, and includes all increases of density, such as fibrosis, pneumonia (compared to liver in color and consistency), thickened pleura, and atelectasis from compression or otherwise. "Hydrops" is applied to all effusions, and explained by the humoral theory. Reading these later sections of the Inventum, it is easy to understand why Roziere thought it would be difficult to find hospitals where such cases could be interpreted, and it is interesting that an important part of the interpretation was done in the same hospital where Auenbrugger began, but many years later.

Without going into the technical part of the work any further let us see how Roziere dealt with nontechnical details. The title page (see Fig. 4) shows that he made a practical translation of Auenbrugger's, rather than a literal one, with so much success that Corvisart followed it almost exactly, changing "de reconnoître" to "pour reconnaître." They both omitted the "abstrusos" that Goldsmith included in the Review, already mentioned, writing "latent disorders of the breast." It seems certain that Auenbrugger meant diseases "hidden or concealed" from the lack of a method that could reveal them, and not latent diseases in the modern sense of "not manifest, but potential" (Dorland, 1932). Forbes (1824) used "On Percussion of the Chest" as the title of his translation, adding the original title in Latin. Goldsmith's use of breast for thorax, while it had good authority, was less technical than "poitrine."

The illustration shows that Roziere spelled Auenbrugger, Avenbrugger. Many writers state that Corvisart began this fashion, which still persists in the United States, and that he did it to accommodate French pronunciation. As the Dictionnaire des sciences médicales,[10] points out, la Chassagne and his critic agreed on this point, but why Goldsmith had a similar concern for Anglo-Saxons is not obvious. Dr. Crane has kindly examined his photostats and finds that the "Public Ledger" used "v" as reproduced in the "New Essays." Perhaps I should add that the title-page of the original edition of the "Inventum novum" used the U and not the lapidary or classical V. It is interesting that Maillot, in his "Histoire de la percussion,"[11] followed the German mode.

In the translation of the "Inventum novum," Roziere followed the arrangement of the original very closely. He omitted the numbers of paragraphs sometimes, and ran paragraphs together without apparent reason, but did not leave out anything, as Corvisart did with a paragraph from a scholium of Section XXIX, no doubt inadvertently. The translation on the whole seems to me to be adequate and the best evidence of this is the fact that Corvisart often followed it verbatim, or differed only in the order of words or in the use of "on" instead of "nous," or "de" for "pour." Auenbrugger and Corvisart disclaimed any attempt at stylistic excellence, and Roziere's work need not be looked at from the standpoint of belles lettres. There are typographical errors of course, but these are no more than might be expected. On the other hand, there are a few mistakes of a rather unusual, even startling, kind that deserve description.

In the author's preface, speaking of the human thorax, Roziere said: "cette capacité" for "cette cavité." He repeated the same word, without need, in the "Advice to Physicians," also in Section XVII and in the scholium of Section XXX (last paragraph). Perhaps the strangest mistake occurs in Section I, "The human thorax resounds when percussed." Roziere used "raisonne," that is "reasons," instead of "resonne." He repeated the same mistake in Section III, and in its scholium. Of course, the words sound exactly alike, and the suggestion arises here, as in the case of "cavité—capacité," that Roziere, or his hack, dictated to an amanuensis and never compared original and MS or proof. He made a banal interpolation by adding to the first paragraph of the preface the words: "Voilà le mystere de ma découverte." A few lines farther he made a pardonable mistake with the pathetic words in which Auenbrugger spoke of the way he perfected the observations on which his discovery rested, "inter labores et taedia." Roziere wrote: "mes travaux et de mes veilles," angl., "my toil and my vigils." Corvisart used much stronger language, "au milieu des peines et des degouts," which led me to seek the reason. Now "taedia" means not only weariness that might accompany vigils, such as composition in hours snatched from rest after practice and research, but also, or even more, loathing, or disgust. I think the matter can be explained and the proper reading shown by a passage in the scholium of Section XLI, where Auenbrugger, describing cavities, ichorous and purulent, as a guide to those who might undertake the study of such cases, applied "taedia" to "observations that are disgusting not only in the sick, but still more in the cadaver." Instead of going back to the preface and correcting it, Roziere made the later passage read:

"observations always painful when made on patients; and disgusting when one has to dig in the entrails of a cadaver." Forbes wrote "amid laborious and tedious exertions," in the preface and omitted the later reference, but he was evidently impressed by the phrase, for he used the Latin words from the preface as a motto on the title-page of his "Original Cases."[12]

As a matter of interest to librarians and Auenbrugger collectors, in my copy of the 1761 "Inventum novum," which has the Errata—Corrige, the word in Section XLI is misspelled "toedia," and not corrected, but it is spelled correctly in the only copy of the 1763 edition accessible to me, the property of the late Dr. LeRoy Crummer.

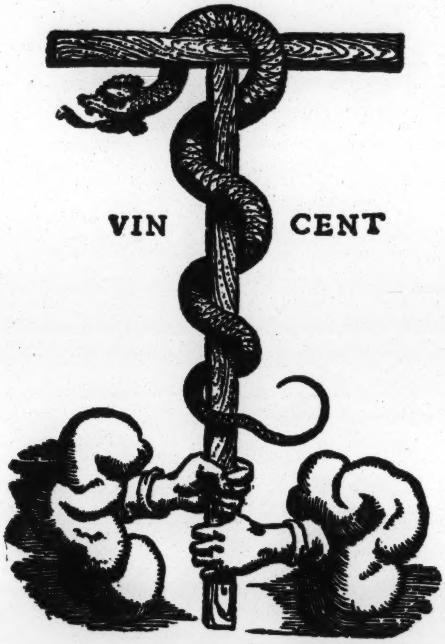
Very early Roziere had difficulty with the barbarous name—to his meridional ears, Van Swieten—and he never got over it. He tried substitutes like "Wans—Wieten," "Wantweiten," "Wansweiten" and made them more conspicuous by using the name where Auenbrugger said "master" or "preceptor."

Auenbrugger had shown his genius by ideas ahead of his time, notably by seizing the application of percussion, and in having, independently of Morgagni, I think, the anatomical mind. He was escaping also from the darkness of "symptoms," and seeking "signs." Roziere was not aware of the difference, and usually, where Auenbrugger used "signis," said symptoms. This is conspicuous in Observation X, where Auenbrugger speaks of scirrhus of the lungs, and its signs. The remarks that follow are purely anatomical, but Roziere translates the word *signis* as "symptoms." Again, in Observation XLV, where Auenbrugger gives the "signa generalia" of dropsy of the chest, Roziere calls them "symptomes generaux." He made a similar translation in the discussion of unilateral dropsy, in the heading, but changed it to "signes" immediately below, only to fall back to "symptomes" a few lines later. In the last few pages he retained "signes," and we may hope he was beginning to get the modern standpoint. Forbes, much later, clung to symptoms, but of course he was a victim of the era of pathognomonic symptoms. A characteristic failure to see the truth is shown in the discussion of dropsy of the thorax. Auenbrugger used the imitative word "murmur" to describe certain sounds in the hypochondria, probably eructations. Corvisart followed him, but Roziere showed his limitation by the general word "bruit." Roziere's failure to follow Auenbrugger's idiom led him to miss another opportunity seized by Corvisart. In Section XXVII, speaking of the diseases of young soldiers that are made worse by nostalgia ("Heimwehe," in German type, in the original; "homeail" in the quaint English of Forbes), Auenbrugger used the words "in desiderio frustrato." Roziere made the involved phrase "un desir qui ne peut avoir son effet," but Corvisart used the ultra-modern "desir frustré."

The early mistranslations must have repelled thoughtful readers, and unlike Corvisart, Roziere offered nothing convincing, like the parallel columns of Auenbrugger's Latin text. But even greater than his linguistic weakness was his total lack of curiosity, which made him unable to get beyond his time and environment, and so to advance the use of percussion by thirty years.

References

1. New Essays by Oliver Goldsmith. Univ. Chicago Press, 1927.
2. Goldsmith's comments on Avenbrugger's book on percussion. *New England J. Med.*, p. 285 (Aug. 8) 1929.
3. Mons, 1778.
4. Paris, 1820 et seq.
5. Paris, 1828–1839.
6. Paris, 1855.
7. Paris, 1852.
8. Ed. 6, 1835.
9. Paris, 1808.
10. T. 40, Paris. 1819, p. 305, footnote.
11. Paris, 1852.
12. London, 1824.



[From Matthioli: Senensis Medici, 1570.]

A HISTORY OF THE DEVELOPMENT OF THE TECHNIQUE OF HERNIOTOMY

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CHICAGO

OF the early history of hernia we are unfortunately almost entirely ignorant on account of lack of suitable documentary material for study. Hippocrates is silent on the subject. Fragments of Erisistratos and Herophilos extant also ignore it almost in toto. Earlier surgical treatises such as the Ebers papyrus, 1550 B.C., or the Smith papyrus, 1600 B.C., both very elaborate Egyptian surgeries, do not cover the surgery of this part of the body. However minor references of various sorts indicate the great likelihood that both the Greeks and the Egyptians had at a very early stage a fairly comprehensive system of operative surgery and that herniotomies were frequently done seems quite certain. Their knowledge of the anatomy of this region was detailed and when one considers the high development of their surgical technique in other parts of the body, one cannot help but believe that their skill was also applied to the cure of hernia.

Strange to say our first real knowledge of hernia surgery begins in Rome . . . Rome, which added nothing to the science but took it over fully developed from the Greeks. The first adequate description of hernia and hernia surgery comes to us from Celsus in the first century A.D. Celsus was probably not even a physician, certainly not a trained one in the modern sense. He was an aristocrat, a member of the illustrious Cornelian family, entitled to the use of the epithet, Eques, knight. This corresponded approximately in the Roman social scale with a baronet in present-day England. A profound scholar and encyclopedist, his writings are not confined to medicine but include elaborate treatises on agriculture, logic and grammar. Galen also wrote voluminously in fields outside of medicine. However, his frequent use of the first person makes one admit that, even if he was not a surgeon by trade, he certainly practiced his art, perhaps among his slaves or his friends. His very character as a collector of information makes his work especially valuable to us, as he frequently refers to older authorities—invariably Greek.

Roman medicine was in a raw and formative stage. All the early practitioners were Greek immigrants or slaves. It had no scientific vocabulary, and, for the sake of exactness, all the early Latin authors had to include the Greek anatomic terms. The Latin words are never those of a scientific type. They are the vulgar popular terms for the parts of the body, often with the implied vagueness of meaning. It is quite amusing that Celsus has frequently to apologize for their use, especially in diseases about the genitalia. Here the only Latin words were evidently the slang or vulgar ones: colis, stem of a plant, shoot (cf. hernia) penis; anus, unknown origin (about which Cicero pondered); vagina, a scabbard for a sword; scrotum, a purse; testicles, a little witness. The very term "hernia" falls in this category. It means in vulgar Latin simply a lump or protuberance. In Roman surgery its use is not limited to true hernias at all but includes cysts and neoplastic and inflammatory swellings, not only in the inguinal region but at the umbilicus. The word is related to the Greek term ’έρνιος, hernios, a bud or offshoot, but is quite possibly not derived from it, but simply from the same common source. It was clearly a vulgar term as Celsus apologizes for its use three times. The word was quite likely used in a derisive sense for any unsightly lump, which would naturally be exposed to public criticism as the Roman club, the Baths, necessitated a sort of nudist cult. It is amusing that in descriptions of hydrocele, tumor of the testis, hernia, as well as tumors or cysts at the umbilicus, the main indication for operation seems to have been, not the possibility of trouble resulting from these diseases, but the ridiculous appearance presented at the Baths and the unkind comments of the onlookers. The excessive pride of the Romans in their bodily appearance particularly in the genitals exposed in the Baths is well shown in the many statues in which the pedestal supports a bust and half way down is a carving of the penis and scrotum. An entire chapter is given to the cure of those who in a moment of religious enthusiasm submitted to circumcision. Not only the Jews but many Egyptian cults required this operation. Evidently many, who subsequently regretted these conversions, were a subject of ridicule. The naked glans is spoken of as "unseemly" or "not decent" and for this reason the plastic operation "ad tegendam gandem coli," for covering the glans penis, was popular. This chapter of Celsus is copied into every subsequent system of surgery for a thousand years. The danger of strangulation and death from hernia is not even mentioned as an indication for surgery.

Although Celsus lived in the latter part of the Augustan age and on into the time of Tiberius, there is but a scant century of scientific medicine in Rome behind him, and probably little or no literature in Latin. All the authorities he quotes are Greek, although many of the later ones practiced in Rome, but always as foreigners. Several of the most commonly quoted predecessors are men of whom we know little or nothing, and it is beyond doubt that his knowledge takes origin in some great treatise or system of treatises now lost. It is quite possible that these are actually lost books of Hippocrates or of his immediate successors, the Alexandrine school. These points are important for the reason that every one of his successors appears to be a slavish immitator. This is a false impression, however, as Celsus was not well known in his own age and certainly not copied. The real explanation is that his successors, Galen, Paulus Aegineta, Aetius, etc. had access to the same documents that he did. On the rediscovery of Celsus his works soon became widely read on account of the purity and elegance of the Latin and the freedom of the text from the barbaric phraseology of later authors. If it were not for the highly specialized nature of the subject matter, Celsus would make as good a Latin text for students as Caesar or Cicero, as he was a real master of the highly polished idiom of the Golden Age of Rome.

Therefore, in this study of the earliest hernia surgery, I will use

Celsus as a text, merely quoting other authors where it is necessary to consult them as to difficult interpretations. They are strangely like Celsus, in some cases so much so that one cannot but suspect that they really consist of Celsus with marginal notes by some later surgeon, which later found their way into the text. Galen speaks but briefly of the surgery of hernia but his Greek text enables us often to translate words obscure in the Latin. He was almost contemporary with Celsus (about a century later) and probably got but little from him, having access to the same sources. Paulus six centuries later obviously used Celsus and retranslated him into Greek.

Most translations of Latin medical documents have been made by scholars actually ignorant of, or at least not especially interested in hernia, and for this reason offer a picture of the surgery done which is woefully deficient. There has scarcely been any work at all done on the subject since the twin discoveries of anesthesia and antisepsis made open operations practically feasible. The following is an attempt to picture for the reader as accurately as possible just how much the ancients knew about hernia and what sort of operations were done for its cure. It will be observed early that the technique described is not really so ancient; it is to all intents and purposes the same as was used 100 years ago and the principles are in many cases still applicable.

DIASTASIS RECTI

This section of Celsus is under the title of "De interiore membrana abdominis rupta," when the interior membrane of the abdomen is ruptured. It is obvious that diastasis recti is the only ventral hernia occurring in an age when laparotomies were nearly unknown. Additional evidence is the fact that he states it to occur usually in the suprapubic region (*circa ilia*) and that it is a common result of childbearing. Just what this interior membrane is will be discussed later; I believe that a good case can be made out that peritoneum is not necessarily meant.

Three methods of closure are described. First, that of transfixion and ligature as for umbilical hernia. The second is vaguely described as excising an oval mass of tissue and approximating the edges of the wound by sutures. The third method is clearly described as follows:

> But the most suitable method is to lay the patient down and then to explore with the hand and find out in which part the tumor is the most yielding, for the membrane must be torn in that part, and where it resists firmly, the membrane will be intact ["membrane" here obviously means "fascia"]. Then the two tunics are cut with a scalpel and the middle portion excised, so that the interior membrane on each side will have a fresh raw surface, because an old wound will not unite by sutures. When the field is thus exposed, if the membrane does not seem to have a raw, but a healed edge, a thin strip of tissue should be excised, so as to produce a fresh surface. The rest of the operation, the suturing and the aftercare has been treated above.

This last refers to the section on penetrating wounds of the abdomen and the pertinent part reads as follows:

> Suture of neither the skin above or the interior membrane is sufficient alone but both must be sewed. This should be done with two threads and sutures must be nearer together than in other places,

because the suture line is liable to be torn by the motions of the abdomen, and besides this region is not especially liable to severe inflammations. Therefore the stitch is threaded onto two needles and one is held in each hand. First the suture should penetrate the interior membrane. Beginning at the end of the wound, the right hand sews the left edge and the left hand the right edge. This is done in such a way that the sharp end always points away from the intestines and the dull end toward them. After each stitch the needles are interchanged so that which was in the right is held in the left and vice versa. Again the needles are pushed through the wound edges, and so on a third and fourth time until, constantly changing hands, the wound is completely closed. After this the same thread and the same needles are transferred to the skin. In the same way each flap is sewed with alternating needles, always sewing from within outwards and always changing hands.

Aside from the rather silly elaboration on the shoe lace stitch, this method is the one adopted by all the Graeco-Roman surgeons. The important point is just what is meant by "the interior membrane." Although usually translated as "peritoneum," it is only on the assumption that these surgeons were utter asses, that one can think that they would neglect the muscles. This is especially true in the lower abdomen where the posterior rectus sheath is so thin as to be obviously useless. The "freshening" by excising the edges of such a thin film as the peritoneum is preposterous. No one could possibly tell whether the edges of a torn peritoneum were raw or not. Obviously the author had fascial planes in mind. Other contemporary surgeons describe clearly the suture of the rectus muscle and their works are probably copied from the same Greek originals as Celsus. The key to the problem is in Paulus Aegineta, whose description of the same procedure in Greek shows at once that the words *τεύων ὑ μενώδος* were translated from the original as "membrane" and that it really meant fascial plane. In the later Arabic writers their own term "*sifac*" (peritoneum) is not used in their translations.

The following excerpt from Galen shows clearly that their ideas on the subject corresponded exactly to our own.

Galen On the Nature of Tumors. Chapt. XVI. (*περ‘ τῶν παρὰ φύσιν ὄγκων.*)

If the peritoneum is wounded or torn and does not heal, a soft tumor grows in that region. If this happens in the inguinal region, it is called bubonocele by doctors and if in the umbilical region, exomphalos. But not only is the *peritoneum involved but it is necessary that the aponeuroses and muscles be affected also. . . .* Therefore sometimes the transversalis muscle is involved but in the groin in real hernias, the oblique muscles are either torn or stretched, the aponeuroses as well as the peritoneum.

Umbilical Hernia

(Book VII, Chapt. 14. Diseases of the Navel)

After certain animadversions on previous authors, the various types of bulging at the navel are described, the term "hernia" is used for all, even though many would not be called hernias now. It evidently meant to the Roman simply a swelling and had none of its modern connotations. Carcinoma is clearly described and said to be inoperable. A benign tumor (*Caro sana*) should be excised, and the wound packed with gauze. The watery swellings (*herniae*) are obviously cysts, and not protrusions from ascites, because their fluctuant nature is emphasized and their cure by incision and packing the cavity is clearly not applicable to the bulging navel in ascites. Swellings containing air are noted but the description is vague and they are not easily identified. They yield upon pressure, but are not reducible, and are inoperable. A dilated loop of adherent gut seems the most probable explanation.

> There are several opinions [as to the treatment] of the other types [true hernias]. It is obvious that the patient must be laid on his back in order to reduce the omentum or the intestine. . . .
>
> [Method 1.] After being sure that the umbilical sac is empty, it is then surrounded by two ligatures. When the ends have been tightly tied together, the sac will slough off. . . .
>
> [Method 2.] Others transfix the swelling at its very base with a needle carrying two threads. Then the opposite halves are constricted one by each of the two ligatures. Thus that part distal to the ligatures will slough. . . .
>
> [Method 3.] Some surgeons go farther. They make an incision in the part above the ligature before they tie it, so as to introduce the finger and more easily reduce anything which may have become herniated. Only then do they tie the ligature. . . .
>
> [Method 4.] [Apparently the author's favorite—*abunde est.*] But it is amply sufficient to tell the patient to hold his breath so that the swelling will be as large as it ever becomes, then to outline the very base with black ink. The patient is then laid on his back and the swelling reduced with the fingers, until one can tell by palpation if anything remains prolapsed. After this the navel is lifted up and a ligature tightly applied in the line previously marked with ink. Then the part distal to the ligature should be sloughed off either with caustics or with the actual cautery, and the wound treated like any other burn. This operation is conspicuously successful not only in intestinal or omental hernias and the mixed type, but also in the watery kind [cysts].

Warning is then given that although the operation is successful in small hernias it is dangerous in large ones. It is not suitable for adults or infants (in the case of the latter Celsus knew that they often get well spontaneously). The ages seven to fourteen are optimum, and the patients must be in good health and free from skin disease.

One cannot help but be astonished that the lessons learned from abdominal wounds and so well applied in the cure of diastasis recti, were not applied as well to the cure of umbilical hernia. The answer is that the other methods were so enticingly easy and quite probably gave rather good results. They are exactly those used today by many veterinary surgeons.

Very slight improvements were made until modern times. The most important modification is that of Paulus who circumcized the umbilical mass and placed his ligature in the cut. This must have been much less painful.

ANATOMY OF THE TESTES—CELSUS

This section has been so utterly confused by mistranslations or too literal ones that its meanings have been entirely changed. It reads as follows:

> They [the testes] are suspended from the groin, each by its own cord called "kremasters" by the Greeks. With each there runs a vein and an artery. They are enveloped in a thin white bloodless and fibrous tunic which is called by the Greeks, elutroeides. About this is a stronger tunic which is quite adherent in

> the lower part. The Greeks call this the dartos. Then areolar tissue (multae membranulae), encloses the veins, arteries and these cords. There is also some areolar tissue in the upper part between the two coats. The tunics and layers above described pertain each to its own testicle. There is a common bag for both testicles and their parts which is obvious to the eye. This is called the oscheon in Greek and by us the scrotum.

It is quite obvious from this description as well as from almost parallel passages in Paulus and other authors that by cremaster, the vasa deferentia are meant. The tunica elutroeides is the tunica vaginalis. The dartos is the cremasteric muscle.

Galen gives an uncommonly detailed and lucid description of the lower abdominal muscles. He states clearly that inguinal hernia is associated with deficiency of the oblique muscles.

ETIOLOGY

Dissections were rarely performed in Rome. As a consequence surgeons only saw the inguinal canals of those who had hernia or of animals. The result was that there was a vague impression that the tunica vaginalis was patent normally. This is clearly stated in many of the later authors. Galen dissected apes and should have learned the truth. The great Alexandrine anatomists had known the correct state of affairs; but their teachings seem to have been forgotten. Celsus as already seen had described the tunica vaginalis as being patent normally in its distal portion but seems to have realized that it was closed up near the internal ring. This idea might well have been derived from the use of the bull in sacrifices or in castration of bulls as this is quite a common condition in these animals. Celsus reads as follows:

> . . . Several diseases may occur, sometimes from a rupture of the tunics which I have described above, and sometimes while they are intact. At times some of the membranes become inflamed by disease and then are broken from the pressure from within. Again, that membrane whose function it is to keep the intestine away from the lower parts, may be ruptured suddenly by a blow. Then either the intestine or the omentum becomes prolapsed by the force of gravity. Thus the way is cleared and [the hernia] gradually descending from the inguinal region to the lower parts, spreads the fascial planes, which are fibrous and, as above stated, open.

A good deal hinges on the interpretation of "the membrane which keeps the intestines up away from the genitals." This might imply a closure of the tunica or again it may simply mean the aponeurotic ring about the mouth of a patent tunica. In view of the well-known contemporary opinion that the processus was patent, this later interpretation seems to be the correct one. If this is true the oft-repeated statement that the ancients regarded hernia as a tear in the peritoneum falls to the ground. Besides it is clearly impossible that ancient surgeons would not have observed that the herniated viscera were always covered by a peritoneal sac. This is the origin of our term "rupture" and it seems then that the ancients had a conception of the process quite similar to our own.

Galen's own words are somewhat clearer (*περι ἀνατομικῶν ἐγχειρησεων*): "In enterocele or so-called epiplocele, it is thought that the tube leading from the peritoneum to the scrotum is dilated [*ἀνεύρεσθαι* cf. aneurysm] although at times it is thought to be burst."

DIAGNOSIS

EPIPLOCELE.

> . . . If it is the omentum that is herniated, the mass in the scrotum is never reduced, whether the patient is starved or if his body be twisted in any way or laid in any position whatsoever. Even if he holds his breath, there is no particular increase in the tumor which is even to the touch, and soft and smooth.

It is difficult to explain this misstatement about the irreducibility of omental hernia, which is repeated by several but not all the classical authors. One may, however, conjecture a bit. Omental adhesions are far commoner than bowel adhesions inside a sac. In most herniotomies, the loose bowel would be found reduced and only the adherent omentum outside in the sac. Besides adherent intestine would be most common in very large hernias and surgery is not recommended by the ancients in such difficult cases. Furthermore many cases with incarcerated bowel would have symptoms such as pain, meteorism, or partial strangulation, all of which to their minds would be contraindications to surgery. These are probable explanations for such an obvious mis-statement in an otherwise quite accurate account.

ENTEROCELE.

> But, if the intestine is herniated, the mass may shrink or swell, aside from any inflammatory changes. It is usually painless and when the patient remains still or lies down, it sometimes is reduced entirely and at other times is so reduced in size that only small bits are left in the scrotum. On the other hand, if the patient shouts or eats a full meal or strains under a heavy burden, it grows larger. It is contracted by cold and expanded by heat [possibly the action of the dartos]. The scrotum is round and soft to the touch and its contents slide about easily; if taxis is made, it returns to the groin, but, when released, it returns with a sort of gurgle.

Here again we note that no mention of incarceration of intestinal hernia is made. Not only did Celsus believe that all omental hernias are incarcerated, but that only omental ones are subject to this complication.

STRANGULATION. This is implied to occur only in the intestinal hernias, as the description of strangulations continues without a break. In two texts consulted the punctuation was such as to make it part of the last sentence in the above.

> . . . and this is the condition in the milder cases. Sometimes however, the swelling increases markedly on account of fecal impaction, and on that account becomes irreducible. It then causes pain in the scrotum, the groin and the abdomen. Not infrequently the stomach is also affected and there is vomiting, first of brown bile, then red bile and sometimes even, black bile.

This of course simply describes the development of ileus, first with vomiting the stomach contents, later of bile-stained intestinal juices and finally fecal vomiting.

DIFFERENTIAL DIAGNOSIS

This is carefully and fully covered and reads almost like a modern textbook. *Hydrocele* is first discussed. The thickening of the tunica vaginalis is mentioned. It is an irreducible, fluctuant tumor, generally painless. Even transillumination is advised. "Tamquam in vitro cornuve per scrotum apparet." "One can see through the scrotum as if in glass or horn." *Edema of the scrotum* is classed as a form of hydrocele. It is marked by a whitened scrotum, which has lost its elasticity and if massive the penis is retracted deep into it. *Varicocele* is next accurately described, and the extreme dependency of the scrotum noted as a feature. (Later classic authors, such as Paulus and Antyllus, advise amputation of this dependent skin.) Next *tumors* are mentioned and finally *inflammatory conditions* which are said to spread upwards and involve the groin and also to cause inguinal adenopathy—(these latter are called bubonoceles, another example of the vague and non-specific use of the earlier terminology in hernia). *Hydrocele of the cord* presenting in the groin of children is described in a later chapter.

INDICATIONS FOR OPERATIONS

The ancients preferred to operate on children, as in them the results were said to be much better as well as for the reason that the mortality was less. In very young children, an attempt to cure by trusses was always made before operation was considered. Complicated hernias of all types were generally considered inoperable. This was especially true of the strangulated variety. This seems strange as one would expect that the almost certain death awaiting the patient would have encouraged such attempts. Nevertheless this attitude persisted through antiquity and the entire Middle Ages. Modern hernia surgery was developed largely in attempts to relieve strangulation during the last 150 years, but in classical antiquity the surgeon was not of high enough standing in the community to undertake desperate operations, on a vague hope of a few cures.

Trussing had reached a high degree of perfection in ancient times and this was the usual method of therapy. Celsus advises strongly against undertaking surgery on hernias that do not cause pain, but feels that it should be reserved for those individuals with small hernias which are causing pain. The hope for cure of a large one by operation was not very rosy.

Just how much surgery was done in these times is hard to tell on account of the peculiar fact that to both the Romans and Greek Romans of the Eastern Empire a hernia was looked upon as an obscenity, not to be mentioned in polite society, much less in polite literature. Just how the readers of Ovid, Catullus, or Petronius could feel this way is hard to see but they did.

In the Middle Ages on the other hand we have much information. Their technique was not notably different from that of the ancients and the operations must have been successful because enormous numbers were performed. They were done not only by itinerant quacks and barbers, but by famous medicos who had large and fashionable local clienteles who must have seen the results of many previous operations. Fabricius of Aquapendente was said to have performed 200 herniotomies a year. Paracelsus says he did 300 a year. The famous Norsini family ran through several generations doing even larger numbers. It is clear from these facts that the operation must have been at least moderately successful.

Its success in the types of cases chosen is quite understandable in the light of modern knowledge. They appear from all the evidence at hand to have made a reasonably careful and thorough extirpation of the sac, even if the closure of the canal was haphazard, if done at all. There are several thousand cases reported in recent papers where the operation was confined to sac removal. These have been extremely successful in newly acquired hernia, especially in children—just the cases chosen for surgery by the ancients. Furthermore the enormous experience in veterinary surgery also shows that this type of operation is successful. The modern veterinary does inguinal and umbilical herniotomies in a manner astonishingly similar to that described in the Graeco-Roman surgical classics.

OPERATIVE TECHNIQUE

The patient is prepared for the operation by abstaining from wine for three days. The day before the operation only water is allowed. On the day of the operation he is to remain in bed until ready and his pubic hair should be shaved off.

The scrotum is put under tension so that the inguinal skin will be smooth, and the incision made in the lowest part of the belly at the point where the tunica vaginalis joins the abdomen [i.e. over the external ring]. The opening is made boldly until the deep fascia, which is continuous with the scrotum, is sectioned, and the cremasteric fascia is encountered. The wound is laid open, and, at its bottom, is the opening into the scrotum. The index finger of the left hand is now inserted, the intervening areolar tissue broken up, and the cord freed. The assistant with his left hand should make traction on the scrotum in a forward and downward direction, pulling it as far as possible from the groin. First he holds the testicle with it, while the surgeon cuts with a knife all the fibres about the cremasteric fascia which have not already been freed by finger dissection. Then he lets the testis go, so that it will slip down into the wound and can be seized in the fingers, and laid on the abdominal wall together with its two coverings.

Thus far is a description of a common approach for all operations on the male genitalia. In the next chapter we find more detailed description of the technique applicable in different forms of hernia.

BOWEL HERNIA.

[Method 1.] . . . The incision is made in the groin and extends down to and through the tunica vaginalis, which should be seized at its edges by two hooks, while the surgeon frees it from the surrounding areolar tissue. It may be traumatized with impunity as it is going to be excised, for the intestine [when herniated] must necessarily lie within it. When it has been freed the dissection should be extended down to the testicle, care being taken not to injure the latter. It [the sac] is then cut out. This technique is suitable for young people or those with moderately small hernias. . . .

[Method 2.] But if the patient be robust or the pathology greater, the testis should not be pulled out, but should be left in its bed. This is done in the following manner. An incision is made with a scalpel down to the tunica vaginalis in the groin. This tunic is then seized with two hooks in the same manner as before described. The testicle is held in place with the left hand, so that it cannot escape from the wound. The sac is then dissected downward, the index finger of the right hand working toward the lower pole of the testis, and dragging the sac up into the wound. Then with the thumb and index finger, the vein, artery and fibrous coats are freed from the sac, such tissues as intervene being sectioned with a knife, until the entire sac is exposed. As much as judged necessary of the sac should then be cut off and the testicle pushed back away from the wound in the groin. Then a fairly broad strip should be excised [from the wound edges] in order to make the wound wider and encourage the growth of scar tissue.

As already noted, intestinal hernias are defined as those which are reducible and therefore the surgeon could confidently expect to find the sac empty. Therefore no instructions are given for the handling of herniated viscera. As was seen in the section on anatomy the ancients were aware of the fact that the testis was held in the scrotum by a band of fibers which we now know represent the vestigial remains of the cremaster internus of Henle. In adult patients the tearing of this adhesion often gives rise to hemorrhage and is a common cause of postoperative hematoma. Many surgeons today insert a small drain in the scrotum when the testis has been torn out of it in an operation. Celsus in his section on surgery of hydrocele gives the same advice.

Failure to ligate the stump of the sac seems at first to be an unpardonable omission, and it may indeed be due to a deficiency in the text. In the operations described by most other Roman surgeons the testis is removed along with the whole cord and sac and the use of double ligatures is insisted upon. From the foregoing description, however, it is quite clear that Celsus made a careful dissection of the cord and excision of the sac exactly as it is done today, and for that reason, failure to ligate it seems all the more unaccountable.

The completeness of the removal of the sac is another question. One must remember that this operation was done only on children or those with very small hernias. Although the external oblique was not incised and the canal not laid open in the modern sense, nevertheless it is likely that a fairly high excision was made. The instructions as to pulling on the cord and the sac are quite explicit and it is probable that under these conditions of extreme tension that the removal extended almost to the internal ring. The resulting inflammatory tissue may have quite successfully obliterated the rest.

It is quite clear that such an operation would only offer any hope of success in children or easy cases and that in large hernias it would be futile. Celsus himself says as much and that in patients with large scrotal hernias the operation only succeeds in converting the scrotal swelling into an inguinal one.

OMENTAL HERNIA.

If it is the omentum which is herniated, the groin is opened in the same manner as described above and the coverings of the cord similarly dissected. Then one considers whether much or little omentum is out. If it is small, the extruded portion is pushed back into the abdomen with the finger or the handle of a probe. If there is much of it prolapsed, it must be left hanging, covered with caustics until it sloughs and comes off. Some surgeons prefer to transfix the mass with a double thread, and thus dividing it in two parts, to ligate both sides. This is safe but slower. [There follows a considerable discussion of the advisability of excising the omentum] . . . If the omentum has been reduced, the wound should be sutured, and if it was too big to reduce, and is left to slough, the edges of the wound should be excised, as was stated above [in intestinal hernia].

This gives us a little glimpse into the failure to suture the wound in intestinal hernia. By definition such hernias had no contents out at the time of operation. If tags of omentum as here described did tend to protrude, the ring was closed. If the herniated mass was very big it would naturally block up the canal and prevent further prolapse and thus suture was unnecessary.

Thus ends our first detailed treatise on hernia, and I think the reader must agree that the knowledge displayed is not by any means to be despised. It probably represents the accumulated knowledge of the Hippocratic and the Alexandrine schools of medicine and contains no Roman contributions whatsoever. Few actual errors are recorded and these are easily explained and are often not serious. The limitations of contemporary surgical art are clearly comprehended and in the matter of indications for operation, one cannot help but feel that they are based on extensive experience and honestly and fairly estimated. All in all the foundation seems to have been laid for a successful and progressive development of the science.

Unfortunately the promise was not carried out. It is almost literally true that no progress whatsoever was made in two thousand years. Indeed, in many respects, there is actual retrogression. In the time of Paulus, the eighth century, castration seems to have accompanied most herniotomies. This was probably due to the decay in surgical technique and the consequent inability to dissect the sac out of the cord, as no mention is made of any advantages in this operation, as for example the more complete closure of the hole in the abdomen. As time wore on this barbarous procedure became more and more prevalent until in the later Middle Ages it was prohibited in most countries by law. Furthermore the clergy took a hand and frowned on it for theological reasons. The sly suggestion that it was quite applicable to monks and priests did not receive much encouragement. Most of the contemporarily celebrated improvements were trivial and foolish things, not deserving the name of surgery. Such for instance was the punctum aureum, the gold wire ligature on the sac. The time of learned physicians was taken up with absurdly elaborate plasters, and mysterious pharmacopeial hocus pocus. Incantations completely abandoned by the clear-thinking Greeks again came into vogue. Aetius, who was a Christian, closed his operations with a prayer, and all sorts of mysterious and secret remedies had their short periods of popularity and were often encouraged by the highest authorities in the land. In the sixteenth century France, the so-called "royal operation" had a great vogue. It received this name as the testicle was preserved to generate future subjects for the king. It was, of course, simply that described by Celsus fifteen centuries before.

Due to the unfortunate interpretation of an aphorism of Hippocrates, the cautery was often used, especially by the Arabs. His statement that those diseases not curable by the knife are curable by fire was, of course, meant to apply to inflammations and neoplasms. Its application to hernia began early. Celsus discusses it, but mentions the knife first. Paulus gives more space to the use of cauteries and as time went on it became more and more popular. The burning of the previously dissected sac, might have been a distinct improvement, as it no doubt prevented infection and hemorrhage, but the cauterization with heated irons of the unbroken skin or even of exposed aponeurotic layers must have frequently had appalling results, and can have accomplished no good.

By the time of the Middle Ages surgery and especially the surgery of hernia and of stone had fallen almost entirely into the hands of itinerant quacks and charlatans. These individuals to be sure had no knowledge of Greek science, any more than the scholars of their age, but they certainly did have a tradition of the art of herniotomy which was carried on from one to the other through the ages. With the dawn of the Renaissance, Greek books on medicine made their appearance and were soon compared with Arabic documents, collated and the classic science restored. However, hernia surgery did not gain much. The operative technique had survived the Dark Ages, in about the same manner as the art of shaving or haircutting, having been practiced continually. Thus the Renaissance brought no boon to the surgeon. On account of the low character of most of its practitioners, it was held in very low esteem. These itinerant quacks had operated upon any one who had the necessary fees and had not observed the definite contraindications set up in the surgical classics, and for that reason the results were unspeakably bad.

A strange phenomenon is that sometimes the most dishonest were the most progressive. Any upright and God-fearing man must believe implicitly in the writings of the ancients, especially Galen, whose text had by some strange chance acquired almost the sanctity of the Bible. It was not only foolish to doubt him, but actually sinful. Therefore any investigator or innovator had to leave his conscience behind him.

The one advance made in the Middle Ages was a much fuller understanding of anatomy. Dissection had been permitted occasionally for centuries. Certain schools, such as that of Salerno, had such privileges from very early dates. These licenses were, however, frequently recalled or modified, and the conditions were changed with every pope and every new ruler. The result had been that no consecutive development of the science had been possible. However, the enlightened though corrupt Medici and Borghia popes had opened the door wide in order to permit the great painters and sculptors of their trains to gain the knowledge so necessary for their art. Although the door has been closed temporarily many times since, the knowledge thus gained has survived.

At about the same time, postmortem examination began to become more common and as a result during the two hundred years prior to 1850 the various sorts of hernias with the contents of the sac, the relations to other organs and various anatomic features were catalogued and described. This age culminates with the two beautifully illustrated treatises published almost simultaneously in Italy and England, by Antonio Scarpa and Sir Astley Cooper. During this period, it may be said that our knowledge of the anatomy and types of hernia reached practically that of the present. The landmarks of this age may be tabulated somewhat as follows.

Although Praxagoras of Cos had advised taxis in strangulated hernia 300 years before Christ, this had generally been abandoned, along with the surgery for this condition. It was not until the middle of the sixteenth century that Pierre Franco had the courage to attack this problem. He freed the sac and tried to enlarge the ring without opening the peritoneum and thus reduce the content. Following this there was a gradual increase in the number of operations for strangulated hernia, until, just prior to our era, this complication was the most important indication for operation. It was in the cure of these cases that most of the unusual sac contents were first reported. Later surgeons opened the sac to reduce the contents, if necessary. It was clearly recognized that strangulation led to death and although interval herniotomies were in decidedly bad repute with the better elements in the profession, most of the strangulated type received surgical attention. It was in attempts to relieve strangulation that the canal was first opened. Many advances in hernia surgery were made by Guy de Chauliac, who specialized in this field. He was the first to recognize femoral hernia and to separate it clearly from inguinal. In 1731, Gimbernat described the ligament named after him, and thus taught how to enlarge the femoral ring without injury to the vessels, by cutting medially. Sir Astley Cooper discovered this ligament in 1804 and advised its use in the closure of femoral hernia.

Strange to say, *direct hernia* was not discovered until 1724, when Heister's monograph appeared. (A section in Celsus has been assumed by some to refer to this condition and by others to femoral hernia. From my own reading I cannot feel that he had anything but an incomplete inguinal in mind and see no reason to assume that he opened the canal. His description of the approach to the sac is exactly the same as for the other types.) Hesselbach's paper appeared in 1814, in which he gave a clear description of the anatomic relations and gave his triangle its name. In 1841, Morton described the conjoined tendon. The late discovery of all these facts is quite conclusive proof that the inguinal canal was not opened in herniotomies, as if it had been, these could not very well have escaped notice.

Diaphragmatic hernia, following wounds at least, was known to the ancients. Ambroise Paré mentions it again in 1579, but the first real anatomic studies are those of Morgagni in 1761, who reported several different types and explained their occurrence on a sound basis. Lumbar hernia was noted by de Garengeot in 1731 and the opening through which it came named after Petit in 1738. Obturator hernia was clearly figured with plates of dissections by Ronsil in 1724. Thus most of our knowledge of the classification of the various types of hernia and the detailed anatomy of the parts involved was a matter of common knowledge before the beginning of the nineteenth century and nearly a century before any real progress was made in the technique of cure.

In the two millenia which intervened from our first knowledge of hernia surgery up to the age of asepsis, surgical art was at a standstill. Every one knew that any form of suturing was not only futile but positively dangerous. The sutures used were ordinary thread, naturally unabsorbable, and the ends of either sutures or ligatures were left hanging out of the wound until they sloughed out. Obviously, union of surfaces thus sutured must have been the exception and not the rule. Such sewing was warranted in case of wounds and other desperate emergencies, but no surgeon dared to incise a fascial plane with the deliberate intention of suturing it. For this reason, the inguinal canal was never opened and therefore adequate surgery was never accomplished. Many wild and absurd methods were tried and discarded. Most of these are so silly that they hardly deserve our notice. Invagination of the skin by sutures and sloughing the internal part with ammonia; passage of metallic clamps up the canal with screws to slough the intervening tissues, blind invagination of the sac; sutures to surround the sac and cord, passed blindly through the subcutaneous tissues; it is with such monstrous and cruel frivolities that medieval and even quite recent modern surgery deals. When the hypodermic syringe was invented two new methods arose. First the injection of irritants into the sac was fashionable. All sorts and varieties of caustic substances were used including alcohol and iodine. In America a tremendous number were injected with an extract of white oak bark, which produced many excessively painful sloughs. No modern surgeon with all his greater anatomic and clinical knowledge would attempt such a thing, knowing that he would surely miss the sac and destroy the important adjacent structures, and that if he luckily did get into the sac, the caustics would pour into the peritoneum. The other method was to inject paraffin. The large knobby lumps resulting from these injections are still encountered occasionally.

In 1867, two generations after the introduction of anesthesia, there appeared Lister's first paper on antiseptic surgery. Not only did his own brilliant results rapidly popularize the discovery, avidly seized by Mikulicz, Oberartz in Billroth's clinic, Czerny in Freiburg, von Volkmann in Halle, but it made more rapid progress in Germany than in England itself where the unfortunate opposition of Lawson Tait held it back. Lucas-Championiérre, trained by Lister himself, brought the new gospel to France. It is not surprising that all these men saw the field of hernia surgery to be opened anew, and many of the basic principles of modern surgery were worked out in attempts to cure the ever available hernia sufferer. Czerny and Lucas-Championiérre made significant contributions. In fact the names of these two will always be linked with those of Macewen of Glasgow and Marcy of Boston as the true pioneers in the field. Certainly the first really modern herniotomy was done by one of these men, quite possibly by Marcy, who also introduced kangaroo tendon. Although several of them have their names attached to obsolete procedures, a study of the literature of the time shows clearly that each of them was experimenting with every possible variation in technique.

From the vantage point of 1933 it seems strange that the progress was not more rapid. The obvious principles to be followed, complete sac extirpation and suture of the canal, were not grasped at once, and even after they had been clearly enunciated by Billroth, were not followed even in his own clinic. Time was wasted on such frivolities as transplanting the sac (Kocher) or rolling it up to make a cork for the canal (Macewen). After twenty years of asepsis that the success had been but slight is amply shown by contemporary papers. A report of the hernia surgery of the world's greatest clinic, Billroth's, was published in 1889 in the *Archiv für klinische Chirurgie*. In this paper the results of other clinics are given for comparison and several hundred such collected cases do not vary much from those of the Billroth clinic. The death rate was 6 or 7 per cent. These deaths occurred from sepsis, peritonitis, hemorrhage, and various operative errors. The rate of recurrence was frightful. Elaborate statistics of the various types of hernia may be lumped and we find that over one-third of the operations were failures, followed by prompt reappearance of the hernia. The detailed reports of over 90 cases are a continuous series of infected wounds. Alcohol injection subcutaneously was still used occasionally with the production of intolerably painful sloughs.

In America conditions were slightly better but only slightly. Our foremost clinic (Hopkins) under the leadership of the great Halsted was still far from having achieved modern standards in hernia surgery. The early *Reports* and *Bulletins* of the Johns Hopkins Hospital covering the period of 1889–90 make interesting reading. The McBurney operation was often done and several are reported. This was exactly like that of Celsus in that after removal of the sac, the wound was packed with gauze and left to granulate. The sac removal was more efficient as the canal was opened, but as the external oblique was not sutured the results must have been rather poor. Halsted had done twenty-one herniotomies by the following technique:[1]

Operation.—February 20, 1890. The skin incision extended from a point about 2 cm. internal to the anterior superior spine of the ilium to the spine of the pubes. The subcutaneous tissues were divided so as to expose clearly the aponeurosis of the external oblique muscle, the external abdominal ring and the sac of the hernia. The aponeurosis of the external oblique muscle, the internal oblique and the transversalis muscles and the transversalis fascia were severed to the outer extremity of the skin incision. An incision large enough to admit two fingers was then made into the sac. The index and middle fingers of the left hand, and a small piece of sterilized gauze were passed into the sac. By them the hernial contents were pressed back into the abdominal cavity and over the fingers the sac, first on one side and then on the other, was drawn tense and held by the thumb of the same hand, while the tissues in which the sac was imbedded were stripped off from it by the other hand. With the division of the abdominal muscles and transversalis fascia the so-called neck of the sac vanishes. There is no longer a constriction of the sac. The communication between the sac and the abdominal cavity is more than large enough to admit one's hand. The sac having been completely isolated, was torn more widely open, and the peritoneal cavity was closed as deeply as possible by seven or eight quilted sutures of fine silk. The sac was then cut away quite close to the line of the peritoneal sutures. The vas deferens and its vessels having been isolated, they were hooked up into the outer angle of the wound by a quilted suture, which included the transversalis and internal oblique muscles and the aponeurosis of the external oblique muscle. This suture was the first of a row of seven or eight quilted sutures of strong silk, which were passed deeply through the pillars of the ring, and through the divided muscles of the abdominal wall. These sutures were taken very close together, were made to include the deepest tissues available and were tied tight enough to bring into close apposition the broad surfaces which they embraced.

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[1] *Johns Hopkins Hosp. Rep.*, 2: 281, 1891.

That such surgery was unnecessarily complicated is quite well attested by the fact that one patient sustained a wound of the bladder causing a urinary fistula and another an injury to the femoral veins resulting in thrombosis. The complete destruction of the obliquity of the canal is obvious.

It is only by reading such papers as these that one can realize the magnitude of the accomplishment of Eduard Bassini, whose paper appears in the same number of the same journal as the above quotations from the Billroth Clinic report. Bassini's contribution was a bolt from the blue. A comparatively unknown surgeon in the little town of Padua in the marshes behind Venice presented to an astonished profession a report that has rarely been equalled in its completeness and finality. Almost overnight Padua became a Mecca for surgeons. Data are given on 262 herniotomies done between 1884–1889, all but four of which were followed. This is itself an achievement of which the most elaborate modern follow up system could well be proud. Of 227 oblique hernias unstrangulated but 5 recurred, 2.1 per cent. There was but one death in the series, from postoperative pneumonia on the fifteenth day, and autopsy showed that the wound was not responsible. Of 19 direct hernias one recurred and 2 deaths followed 11 operations for strangulation. Detailed analysis of the time of wound healing showed it to far transcend the usual results of that period. All types of hernias were included and about one-third were very large. It was far from a selected series, including patients from all walks of life and of all ages. Seventeen also had undescended testes.

Thus of a sudden there appeared a final and definitive paper which put modern hernia surgery on its feet. The medieval methods in vogue throughout the world were swept aside, and almost every detail of the methods of operative therapeusis of hernia was offered to the profession with ample statistical proof of their value. This included many minor technical points the credit for which is generally given to others. In Bassini's paper there is a clear description of the freeing of the ectopic testis from its surroundings and its replacement in the scrotum. He often used the rectus sheath in the closure. The endoabdominal fascia was included in his stitches and he emphasizes the importance of this. Above all the principles which he laid down are standard today and his results are eloquent evidence of a unique mastery of technique, as the same operation today in less skillful hands rarely yields as good results.

SIR THOMAS BROWNE AND THE DISEASE CALLED THE MORGELLONS

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IN "A Letter to a Friend"[1] there is a short passage of especial interest to a pediatrician, not only because of the information it yields on Sir Thomas Browne's own interests in medicine, but also because of the condition described. The single reference he gives, however, "See Picotus de Rheumatismo," is both inadequate and strangely misleading, and the condition referred to now so obscure that further comment would appear justifiable, the more so that no less a person than Greenhill[2] himself has confessed his inability to throw any light on this passage whatsoever.

For another reason this passage is also of interest. It constitutes one of the very few references that Sir Thomas Browne makes to his stay as a student at Montpellier in Languedoc, possibly, with the exception of his reference to the speech of that country in his tract "Of Languages,"[3] the only one. Yet this must have been for him a most memorable journey, during which, as Wilkin[4] remarks "it is impossible to suppose that he travelled without observing, or that he observed without recording."

Gosse[5] is of the opinion that he sailed in 1630 directly to La Rochelle, and from there went on to Montpellier, arriving there about October, when the courses in Medicine began. The siege of La Rochelle[6] had ended then a bare two years before he landed, and had it not been for the edict of the king, the roads through Languedoc might well have proved impassable; for the king and Richelieu had with their army harried the land, defeated Rohan, and so aggravated the plague, then prevalent, that all commerce ceased, and the inhabitants of towns, in order to isolate themselves, obstructed the roads.

Despite these measures the plague spread so that the king, having on the 14th of July, 1629, declared a peace at Nimes, hastened North, both because of it, and of the heat which had become intolerable. In 1629, 2000 died of the plague at Montpellier, 5500 at Montauban, and in 1630–31 50,000 at Toulouse.[7]

The arrival of Thomas Browne at Montpellier coincided then closely with the sudden desperate illness of the king at Lyons, Richelieu's extreme jeopardy, and the subsequent recovery of the king, following the rupture of a peri-anal abscess on October the 2nd.[8] His sojourn at the college, where Lazare Rivière had been one of the professors since 1622, and Ranchin[9] was chancellor, and engaged in rebuilding and embellishing it at his own expense, must have been enlivened by reports of the struggle that Languedoc was having with the king to retain her own fiscal autonomy; by rumors of Gaston, the king's brother; of Montmorency, and of the impending rebellion.

It is therefore eloquent of the man and his interests, and also perhaps remarkable, that writing over forty years later, he should refer to none of these things, but should recall that

> Hairs which have most amused me have not been in the face or head, but on

> the Back, and not in Men but Children, as I long ago observed in that endemial Distemper of little Children in Languedock, called the Morgellons, wherein they critically break out with harsh Hairs on their Backs, which takes off the unquiet symptoms of the Disease, and delivers them from Coughs and Convulsions."

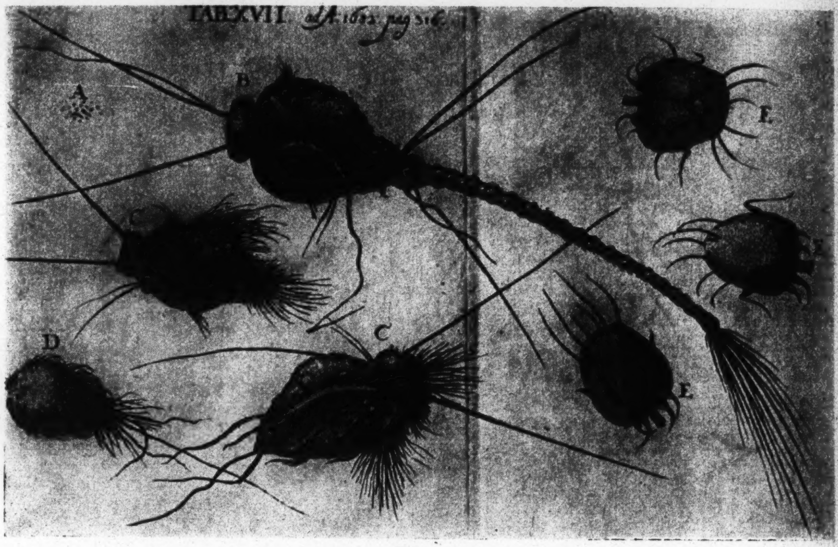

FIG. 1.

and that the single reference he gives—see Picotus de Rheumatismo—should be not only vague, as are indeed all his references, to a degree unusual at that period, but also misleading.

The book to which reference is made is almost certainly that written by Petrus Pichotus, a physician of Bordeaux. This was published in duodecimo by Millangium of Bordeaux in 1577, and does not appear to have undergone a second edition. This book is now rare; there is no mention of it in the Surgeon General's Catalogue, nor in the Bibliotheca Osleriana; on the other hand, the British Museum, and the Library of Christ Church, Oxford, both have a copy.

It is, moreover, doubtful whether Sir Thomas Browne ever owned this book. In 1711 his Library, together with that of his son, Edward, was sold by Thomas Ballard in London. Two copies only of the sale catalogue appear to have survived. One was given to Osler by Sieveking[10] and the other is in the British Museum. This catalogue, which enumerates rather under 2500 volumes, of which some 420 were, as Letts[11] points out, published after 1682, and so must have been purchased by Edward Browne, constitutes our main source of information as to the books Sir Thomas Browne owned. For it is a reasonable surmise, and one generally received, that the vast majority of the older books were his. In this catalogue, in which some 500 medical books appear, there is no mention of Pichot's book "De rheumatismo." This is not unimportant, and may explain why Sir Thomas Browne failed in so signal a manner to verify this reference, for in this book, even though on pages 18–24 there is ample opportunity for so doing, no note, as Greenhill[2] has pointed out, is made of the Morgellons, nor could I discover (in this book) any reference, however vague, to the condition. On the other hand, in the catalogue of Browne's Library are mentioned several much more accessible books of the period in which this condition is, I believe, clearly described, and, in the case of Schenckius, most adequately discussed.

Before, however, examining these, and the disease called by Browne "The Morgellons," there is a further point which arises from a consideration of the books in his possession. This, though based on no more than a surmise, may, if accepted, not only explain how it was Sir Thomas Browne should have chosen to recall this condition he had encountered in his student days, but also serve to fix the year, always conjectural, in which he wrote "A Letter to a Friend."

The first monograph devoted to the condition he calls the Morgellons was that of Velshius,[12] and was entitled "De vermiculis capillaribus infantium." This formed the second part of a book which was published in quarto by Goebelius at Augsburg in 1674. The first part of this book, which was also by Velshius, was an "Exercitatio de vena medinensi." Both works are exhaustive and learned. Now the booksellers[13] of Sir Thomas Browne, William Oliver and George Rose, were in the habit of sending him books "to vewe" as soon as they were published. He had presumably already purchased from one of them, Velshius' recondite book "De aegagropilis," which appeared in 1660, and is catalogued in his Library. It is, therefore, very probable indeed that he received a notice of this book, or actually viewed it, the year of its publication. Should this be so, then the reference made in "A Letter to a Friend," a few lines further on, to Duloir's Travels,[14] which were published in 1654, as being "scarce twenty years ago," is one that may admit of a literal interpretation, and the "Letter" dated not 1672, as Greenhill[15] suggested, but almost certainly towards the end of 1674. It is possible, then, that this was not simply a haphazard recollection, and that Browne had good reason for believing this disease, so whimsical and fantastic, was one that would shortly awaken general interest.

The edition of Schenckius' "Observat. medicae rarae," that is recorded in Ballard's catalogue, is of Frankfort, 1610, and in view of the many subsequent editions, must almost certainly have belonged to Sir Thomas Browne. Schenckius, having discussed the Dracunculus, known to the Arabians, in his VII Observation, Lib. V, in the VIIIth deals with

> . . . Worms or, as others will have it, Hairs, which are wont to infest the muscles of the arms, calves, and back in infants and children, and which are unknown to the old authorities . . .

and prefaces his own description of the condition with that given by Kufner in his appendix to the book on Diseases of Infants, written by Leonellus Faventinus de Victoriis.[16] This runs as follows:

> There exists in little children certain living principles having the appearance of worms, that are called by the common folk Dracontia. They settle especially in the muscular parts of the body, to wit the arms and legs—the calves especially. Occasionally they even congregate in the flanks under the skin, and sometimes occupy the whole of the back, or failing that

at least the inter-scapular region. These little creatures have this property that, unless they are extirpated by the appropriate remedies, they lead either to a hurtful suppuration, or else forthwith cause the child to waste. We destroy worms of this type, that are in the habit of lurking in the pores of infants and little girls, with this cure. Should they fail to become more prominent, that is should they, having applied warm fomentations and smeared on an edulcent (such as Melicraton) and spice, not thrust out their heads, then they must be positively shaken into coming out into the open. Take as much of the root of the wild vine, or of the white vine, as may be pressed into one hand: Boil this in a lye made from properly mixed oak charcoal. With this the whole body of the child, and at the same time the worms, should be sprinkled and washed. Having done this the mouths of the Dracontia which will have advanced forward are to be shaved off with a razor. When these have been beheaded in this manner, the child should be cleansed afresh from the aforesaid lotion by bathing in castor oil, and should then be washed and the exposed, and possibly cut, skin smeared all over with Syrian salve.

This book of Faventinus, together with the appendix of Kufner, was first published in 1544, and it is probable that this constitutes the first description of this condition. Yet George Kufner junior, who probably deserved Still's[17] rather caustic comments, is almost alone in confusing this condition with the Dracunculus described by the Arabs, and does not appear to have realized this priority of his.

Schenckius then inserts his own description of this disease:

> There is a type of intercutaneous worm which is wont very frequently to infest infants under six months and not infrequently also children of two years or of about that age. They are born, in preference to all other places, in the muscles of the arms, legs and back, and arise from an excrementory humour which is contained within the pores of the body, and is common at that age. This, because of the repression of transpiration and dispersal, undergoes putrefactive changes and becomes alive and, in proportion to the number of receptacles of the pores, is converted into worms, which have a shape not at all unlike those that are born in putrefying cheese, but very much smaller. They never creep entirely out from the pores, but protrude their little heads, which are distinguished as so many black points. How should they not then be most troublesome, for by exciting a sensation of extreme warmth and, at the same time, of itching, they bring in their train insomnia and restlessness. Where they are packed together in large quantities and are increasing, there they plunder away from the living flesh, in the same way as do pediculi, the nourishing humours, taking for themselves that which should have been for tender bodies. Because of this little children pass rapidly into wasting and extreme emaciation. As soon as the women become aware of this, they bring them to the sweating chambers and turkish baths. They first soothingly massage the muscles and affected parts with the hand, and then also anoint them all over with honey. By this device the worms are enticed out as far as possible and so killed. The further prescription of the surgeons that their protruding heads should then be mown down with a razor is not, however, followed by our people so much as it deserves. Our German people refer to these as Mitesser and die zehrende Wurm [*sic*], from the fact that they seize for themselves and consume the food of the infants whom they infect. The Norumbergians call them die durzemaden [*sic*] or, as you might put it, the worms that induce wasting.

This description by Schenckius is followed by a series of four further extracts from other authors who treat of this condition. Two of these, at any rate, appear to merit further mention. The first of these extracts is from the book written by Montuus, who is this briefly dismissed by Astruc:[19]

> Medicin de Lyon, Docteur de Montpellier, a composé quelques petits traités de Medicine, qu'on ne lit plus depuis longtemps. Ducange dit qu'il fut premier Medicin du Roi François II, & c'est tout ce que J'en scais.

In 1558[20] he published a book "Halosis febrium" the third part of which deals "De infantium febris. . . ." and contains the following account of this condition, which Still[21] has translated as follows: It is rather remarkable that he, an inhabitant of Languedoc, should have been content with but a second hand report of this malady, which he regards as "A new affection of infants," but which he was not the first, as we have already seen, to describe.

> There is also another infantile affection, as a result of which children constantly cry and scream without apparent cause: epilepsy eventually supervenes in these cases, and in a large proportion ends in death. The common name for this is "the hair affection" (pilaris affectio); for this reason that by the protrusion and evulsion of hairs some cases are saved: and after this manner: the shoulders and neck are rubbed with the hand either dry or smeared from the milk-pail, i.e. with milk still warm from the milking-pail; the parts which are rubbed soon become rough with hairs which are clearly seen springing out like a growing beard. Then by means of bacon rind rubbed over the hairs or by a forceps every single hair is plucked out and forthwith they are cured. So I gathered from the account of a certain noble matron, who stated that in the year 1544 she saw several infants who died of this illness, and some who were saved by the afore-mentioned treatment. Very closely analogous to this is what is said to be the case in pigs, for Didymus says that they are known to be out of health by hairs plucked out of the neck; and if their tonsils are diseased, they are cured by the plucking out of these same hairs.
>
> The above-mentioned affection, so far as I can judge, is a fore-runner of epilepsy, where this is not a primary cerebral disturbance nor of reflex gastric origin (sympathia ventriculi) but by reflex from some posterior part in relation to the back. The so-to-speak sooty excretion (which is the material out of which hairs are formed) pass thence via the nervous structures right up to the brain, unless it is forced back by rubbings, and issuing forth through the pores of the skin which have been rendered more permeable by dry friction, is turned into hairs. Hence it is not difficult to see that rubbings without oily material, which blocks the pores, would be the more helpful.

The second description is by Ambroise Paré[22] who, during his prolonged stay in Bayonne[23] with the King in 1564 may well have come into personal contact with the condition, though while both Montuus and Guillemeau, as well as Sir Thomas Browne, stress the frequency of this condition in Languedoc, he does not do so. He writes:

> The mention of the Dracunculi, calls to my memory another kind of Abscess, altogether as rare. This our Frenchmen name Cridones, I think a Crinibus, i.e. from hairs: it chiefly troubles children and pricks their back like thorns. They toss up and down being not able to take any rest. This disease ariseth from small hairs which are scarce of a pins length, but those thick and strong. It is cured with a fomentation of water more than warm, after which you must presently apply an ointment made of honey and wheaten flowers; for so these hairs lying under the skin are allured and drawn

> forth; and being thus drawn, they must be plucked out with small mullets. I imagine this kind of disease was not known to the ancient physicians.

The other two authorities quoted by Schenckius do not add materially to our knowledge of this condition.

The account, however, given elsewhere by Guillemeau[24] is of considerable interest since, in certain respects, it resembles so closely that given by Sir Thomas Browne.

This appears as the last chapter of a book published in France in 1609, and printed in London for A. Hatfield, in 1612. His account runs as follows:

> Chapter XXXIX. Of the breeding and comming forth of Haires on children's backs and raines, called in Languedocke Masquelon, and of the Latines Morbus pilaris.
>
> It had beene more agreeable and convenient to have set down this disease in the Chapter of the Unquietnesse and Crying of little Children. But as this book was even almost printed, M. Toignet, a Barber Chirurgion of Paris put me in mind of this disease that happens unto little children, which is verie common in Languedocke and is called in their language Masquelon. Having inquired of divers physicians about this disease and among the rest of Mons. Riollan, Doctor of Physicke in Paris, and the King's Professor of Chirurgery, a verie learned and painefull gentleman, he told me that Montanus had written of it and that he called it Pilaris affectio.
>
> As soone as little Children are taken with this disease they crie and take on extreamely and yet one cannot perceive any cause, why they should do so, which brings them oftentimes even to their grave, for this disease drawes along with it Epylepticall convulsions: because the sinewes which come forth of the backebone and are scattered on each side are overburdened and filled with some fuliginous vapour, of which Haires are bred, and they by their great length and continuity are carried directlie to the braine; whither when they are come, they cause this disease. The Women of the countrie of Languedocke, because it is a common disease with them, make no great reckoning of it and doe help it in this manner. With the palme of their hand they do rub the bottome of the childs backe and reines downe to the crupper-bone so long till they feele through the pores of the skinne the tops of very stiffe and pricking haires to come forth like unto hoggs bristles, which as soone as they see that they are come foorth, they pull them away by and by with their nayles, or else with such little Pincers as women use to pull the haire from off their eyebrowes. The same Montanus counselleth the woman to rub her hand first with some new milke; which being done and the haires pulled away, the child presently recovers his health and leaveth his ordinarie cries and laments.

Though this book ran through two editions in England and several of the early books on Pediatrics are in Sir Thomas Browne's Library such as Austrius,[25] Omnibonus Ferrarius,[26] and Hucher,[27] he does not appear to have had it. He may well not have known of its existence, or else have preferred to ignore it. For Patin, who had from time to time praised the "Religio Medici" and its author, appears particularly to have disliked Guillemeau as a pushing fellow, as a "rusé courtisan qui avait grande envie de faire fortune,"[28] and Sir Thomas Browne had for Patin a great respect.

Whether or not he was aware of Schenckius or of Guillemeau's contributions, certain it is that Sir Thomas Browne shares fully in the reluctance common to all compilers to refer to other compilations. Conrad Gesner's[29] works were in his library, in Nordenskiold's[30] opinion "one of the greatest biological works the world has seen," and yet he scarcely refers to them at all. The great majority, if not all of the volumes of Aldrovandus'[31] great encyclopedia on natural history were also his, and Gosse[32] believes that it "is the barest justice to say that Browne could not have carried out his ingenious labours without his aid." Yet Browne, when he does occasionally refer to him, as in the paragraph on the Musick of the Swans,[33] refers to him in his capacity of an original and renowned ornithologist, and not as a compiler to whose labors he must have been greatly indebted. Nor is it unreasonable to feel that a reference to Schenckius, one of the most popular books of the period, would have served largely to have reduced a glamorous and, on the face of it, fantastic recollection, to the mere commonplace, a disadvantage that Sir Thomas Browne would have been the first to appreciate.

There were other books, however, in his library to which he might have referred, even though, oddly enough, none of these are books referred to by Schenckius. Two of the four works by Montuus are in the Library, the "De activa medicinae scientia,"[34] and the "Anasceves morborum,"[35] but not the "Halosis febrium" in which he describes the condition, while Ambroise Paré is not represented at all in a Library which it is perhaps interesting to note here, since Ballard's catalogue is so inaccessible, contained the surgeries of Guy du Chauliac (1585), and Hildanus Fabricius (1646) and Fabricius Acquapendente (1619), as well as his Anatomy, and those of Vesalius (1555), Spigelius (1627), Columbus (1559), Aselli (1628), Fallopius (1600), Bartholinus (1651), Highmore (1651), Glisson (1677), Willis (1664) and Wharton (1656); and in Medicine, in addition to Foesius' Hippocrates (1624) and Cornarius' Galen (1549), such standard words as those of Sennert (1650), Lusitanus (1649), Riolanus (1610), Forestus (1634), Rivière (1653), Cardanus (1663), Baccius' "de Thermis" (1622), the "letters" of Manardus (1542), and the "Quaestiones Medico-legales" of Zacchias (1661), together with Glisson's, "De rachidite" (1650) and Harvey's, "De generatione" (1651) and "De motu cordis," (1648) both of which, strangely enough, are only mentioned in the addenda to the catalogue. Hucher's book he had, however, and Still has pointed out that this contained a brief mention of the condition.[27]

He might well have thought of this author in this connection, for he was one of the great chancellors of Montpellier, and Ranchin, who had at his own expense rebuilt the amphitheatre college in 1620, had caused the following inscription, which Browne would surely have noticed, to be put up in his honor on the face of the Medical School Buildings:[36]

D.M.

Joannis HUCHERII Bellovaci, sallutis publicae Conservatoris, Professoris regii & Cancellarii qui postquam coelum nostrum medicum dignissime, diu sustenavit Atlas, defunctus est in hoc Montepelio. Ann. D.M.DC. III.

Furthermore, he was an author after Browne's own heart, and deeply interested in witchcraft, over a hundred pages in this book being devoted to occult causes of sterility "seu de maleficiis."

This reference to the condition is, however, very brief, and far more helpful would have been Borelli,[37] whose "Observationes medicae rarae" he had in the Paris edition of 1656, for his account has the rare virtue of being at first hand, and his nomenclature the merit of yielding a clue to the etymology both of the Morgellons and the Masquelons, from which I believe the Morgellons is derived.

This observation is the 80th in the first book, and is entitled "Vermes in dorso—Masclous dicti."

Now Masclous is, as might be anticipated, pure provençal, is apparently a term still employed, and is defined by Mistral[38] in his dictionary as meaning "cirons, insectes qui s'engendrent entre cuir et chair." Masclous is derived by him from Mousclοun, which is in turn a contraction of mouscoulo, or mouscouloun, of which there are many alternative spellings, such as mascoulo, mescoulo, mousclouroun, and mescouloun; from one of these came probably Guillemeau's masquelons and Sir Thomas Browne's morgellons. Mouscouloun itself means the hook which is attached to the end of a spindle, and is derived from the Latin *Muscula*, a little fly, a root which has appropriately enough given many words to Provence. Borelli's description, somewhat abridged, runs as follows:

> As in the human face, especially the nose, so almost throughout the whole body lurk little worms with black heads, giving rise to itching . . . so also children have worms in the back like hairs, by which they may be so tortured that they can neither sleep nor take their milk, but on the other hand do not cease from harassing their mothers with their incessant screaming. This condition I saw with my own eyes in my brother, but following an inunction with honey, within a few days the worms came away from the back. . . .

The subsequent history of this condition is not without interest. In 1682 Ettmuller[39] published in the "Acta eruditorum" a couple of observations, the first "De crinonibus seu comedonibus infantum," the second "De sironibus." In the first observation not only is the condition once more described, and its recent origin stressed, but Ettmuller claimed to have settled once and for all the much debated question as to whether the "hairs" were living or not, by microscopical examination.

His figures of the parasite are reproduced in Figure 1. A shows the parasite under the naked eye; B, C, D, under the microscope, B alone being a perfect specimen. E, E are figures of the Cirones or sarcoptes hominis, which he describes in his second observation.

Though much doubt was subsequently to be attached to the accuracy of his first observation, the second at any rate appears to be sufficiently accurate to justify Ettmuller claiming some degree of priority over Redi,[40] whom Brumpt[41] gives as having been the first to describe this parasite in 1687.

Andrey,[42] twelve years later, reproduced Ettmuller's diagram in his monograph on the generation of worms and, while in no way casting doubt on their existence, contented himself with an epitome, in the main of the accounts I have already given. But, though his book is most aptly prefaced by a quotation from Job, Chapter VIII, v. 5, and despite such authority, the vogue of worms as an aetiological factor, which had equalled the more recent vogue of the schizomycetes in a similar rôle, was waning, and in a few years was to receive, on the publication of Le Clerc's "History of Worms" in 1715 a blow from which it never seems really to have recovered.

Le Clerc[43] treats the morgellons in a most cavalier fashion. He writes:

> From the fountain of Error indicated in the second place to wit from things inanimate, are also bred a certain species of Worms which are cutaneous and called Cridones or Crinones, if they are only Hairs, as Leuvenhoeck will have it. . . . Leuvenhoeck, we find hath swept away the Crinones of Ettmuller and others from the Number of Animals. Ettmuller indeed challenges us to the Test of Experience, and affirms by the Assistance of the Microscope he had seen those Crinous, that is, true Worms; but since Leuvenhoeck by using the same Instrument did not discern them to be little Worms, but Hairs or Bundles of Hairs, and an inanimate Matter, it remains that we make a Judgment to ourselves which of the two we will believe, and which not. But if we enquire whether of them understood the Art of managing the Microscope best, or used it most frequently, no Body, I am of Opinion, will prefer Ettmuller to Leuvenhoeck, who was the most eminent that Way of his Age; so that if either err'd, it is most probable 'twas Ettmuller. But those who use these Glasses with the most Success, can decide this Controversy best; and if there are any Children afflicted with this Disease, they fall into their Hands, for I never saw any, nor any Physicians of my Acquaintance.

But whether or not Leuwenhoeck's[44] observations refer to the same condition is rather a matter for conjecture and, to say the least, doubtful. Nevertheless, the Morgellons had apparently suffered a complete and rather ignominious eclipse when, on the 22nd of October, 1776, M. Bassignot,[45] Physician of the Town of Seyne in Provence, read a paper with the following title to the Société Royale de Medecine: "Histoire de la maladie connue sous le nom de Crinons, qui attaque les nouveaux nés a Seyne en Provence," and which, with several rather considerable omissions, reads in English as follows:

> Seyne, Sedena, a little town in Haute-Provence, in the diocese of Embrun, is the seat of a strange malady, which attacks nearly all the newly born. Writers mention it under the name of crinons, or comedones, and it is, known in the district under that, of ceès, which is a corrupt form of ceddès, a Provencal term meaning bristles. The malady becomes manifest during the first twelve hours or on the day following birth, sometimes during the first 15 days, or even a month after birth. . . . The symptoms by which it is recognized are a very considerable degree of itchiness, which is augmented by the warmth of the bed, and which prevents children from sleeping; incessant restlessness; complete inability to suck, the tongue being unable to fold on itself and grasp the nipple; and finally the impaired sound of the child's cries, which either become hoarse, or else nearly die out. This last sign seems indeed, to be the most significant, and the severity of the malady may be estimated from the degree of loss of voice, and from the weakness of the child's cries.
>
> As soon as the presence of crinons is convincingly demonstrated by the signs we have just discussed, the cure is proceeded to. This consists in frictions which are done by the women of the district who are so used to recognizing and treating this condition that as a rule they call in neither physician nor surgeon. . . . I am unable to determine accurately the extent of the country in which the malady has established itself; the enquiries that I have made suggest that few of the newly born are attacked by it at Digne, Sis-

teron, Gap and Embrun, but that the disease is more frequently encountered at Barcelonette.

Nor was this a unique and final mention of this condition. Within a further thirteen years, J. G. Wolf[46] wrote a thesis on the comedones for his M.D. at Leipsig which, though guarded in the extreme, received such a review in the *Journal de Medecine* for 1791[47] that the Morgellons might well consider their position to be once more impregnable:

> With the help of the microscope these cinder-coloured animals may be made out, having two horns, round eyes, a tail which is long, forked, with the extremities, which are bent up, covered with hair. These worms are terrible to look at.

Bruguiéres[48] had occasion to study a case personally, and believed that the little hairs which were elicited on rubbing the child were capable of independent movement. He mentioned that the condition was known in Provence as Masclous. Laënnec,[49] however, writing shortly afterwards, considered that the parasitic nature of the disease was not yet proved, and going a step further suggested that the little hairs, the so-called crinons, "ne sont autre chose que la matiére onctueuse qui enduit la surface de la peau, et qui s'en détache sous la forme de vermisseaux chez tous les hommes par l'effet des frictions faites avec la main."

In 1843 Simon[50] described the Demodex folliculorum, a common inhabitant of comedones, which may well have been the parasite seen by Ettmuller, as was apparently suggested by Schönlein[51] some years ago.

Then again there appears to have been a further lull in the interest taken in this condition: significantly enough, when the condition is once more described, it is in England, in London in the eighteen eighties, at a time of considerable industrial depression and squalor, and it is referred to once more as a new condition.

In April, 1884, Radcliffe Crocker[52] published a series of cases designed to "illustrate a condition which is not generally recognized as a disease of childhood, as the text books only describe comedones as they occur at puberty and onwards, from which this condition differs in several particulars." It is to be noted that the majority of his cases were in boys between the age of three and twelve, and the comedones were, as a rule, localized to the head.

> The position in most of the boys corresponded with the part where their caps were in closest contact with the skin; naturally suggesting that they had some causative connection; and, on comparison with the cases where other regions were affected, the common factor was found to be warmth and moisture. This was confirmed by a recent case of a girl of three years old with laryngeal obstruction, probably diphtheritic where, after repeated linseed poultices she presented—when I saw her—scattered comedones with acne and pustules all over the back and lower part of the chest.
>
> . . . Comedones in children differ from those in adults in their being mainly dependent on local causes, on their greater tendency to group and to be more closely set, in their involving the hairy scalp, and finally to their being generally readily amenable to treatment, all that is usually required being friction with a weak soft soap and spirit liniment, or a weak, sulphur application may be employed in mild cases, preceded by fomentation with very hot water.

The subsequent writers[53–58] of this period do not really add further to our knowledge of this condition. Julius Caesar emphasizes once more the novelty of the condition: "a rare and hitherto unrecognized affection in children," and the district from which he writes suggests poverty as constituting an important factor in this condition. Cases of MacLeod and Dore, in which the distribution coincided with the areas rubbed with camphorated oil, further illustrate another factor mentioned by Crocker, and the emphasis placed by Harries on the rôle played by the familiar Lancashire shawl in his cases is paralleled by Crocker's observations on the relationship of the comedones to the caps the boys wore.

The case published by Cauty at an earlier date as "A Bristley Boy" strikingly illustrates the aptness of the name of the condition both in Narbonne, where "they were called the Soyes, that is the bristles" and in Haute-Provence.

Whether or not the condition described by Crocker is identical with that known by Sir Thomas Browne as the morgellons, can only be a matter for conjecture: it is possible that Ettmuller was less grossly inaccurate in his drawing than is supposed, and that the illness represented an invasion of man by a type of demodex, not now generally known; but this is not, I think, probable.

If, however, the condition described by Crocker is the same as that mentioned by Sir Thomas Browne, it would appear necessary to advance some explanation both for the difference in the age of onset, and in the localization of the comedones. These differences are, however, I believe, in the main superficial, and probably represent no more than an expression of the greater intensity in Browne's time of the very factors mentioned by Crocker. The localization of the morgellons, which was not confined to the first few weeks in infancy, being dependent on the method of swathing the child then in vogue, the great prevalence of the malady upon the extreme poverty of the people at that time.

While Glisson,[59] with a certain amount of satisfaction, adequately describes how

> . . . the midwives and nurses do handle them so artificially when they are new born. . . . They enwrap the whole Body, excepting the Head, in one continual Covering; whereupon the exterior and first affected parts of the Body in this Disease are fortified against the injuries of the outward cold, and the hot exhalations breaking out from any part of the Body are duly and equally retained by reason of that covering which is two or three times double, and bound about with swathing Bands, and equally communicated to all parts of the Body so that they are cherished with an even heat as it were in a common Hypocaust or hot House . . .

The poverty and utter misery of the French people at that time has perhaps been most eloquently portrayed by Michelet.[60] He, moreover, and I believe rightly, saw in the outbreak of witchcraft during this period, an expression of the utter distress of the people:

> Pendant que la terre devient stérile et que la subsistence va toujours tarissant, l'homme aussi veut être stérile. . . .
>
> C'est là, en réalité, la cause principale qui étend si prodigieusement l'action des sorcières en ce siècle. Les vivres ont enchéri horriblement, et la rente pèse infiniment plus qu'aux temps féodaux. On ne peut plus nourrir d'enfants. . . .

Le paysan se donne au Diable. Et la paysanne encore plus. Écrasée de grossesses d'enfants qui ne naissaient que pour mourir, elle portait, plus que l'homme encore, le grand poids de la misère. J'ai dit au quinzième siècle le triste cri qui lui échappait dans l'amour: "Le fruit en soit au Diable." Et que lui servait, en effet, de faire des morts? ou, s'ils vivaient, d'élever pour le seigneur un misérable, un maladif, qui maudirait la vie et mourrait de faim à quarante ans? Lorsque la femme disait cela vers 1500, on vivait pour deux sous par jour. Combien plus le dira-t-elle en 1600, ou on ne vivait plus avec vingt sous! La mort devient un voeu dans cette misère.

It is, I think, significant that the distribution of this malady should, in the main, coincide with those areas where this superstition prevailed at that time the most, and fitting that the etiology of both should have resided in factors with which Sir Thomas Browne should, perhaps to a greater extent than any of his contemporaries, have been so unconcerned.

SUMMARY

Attention has been called to a passage in "A Letter to a Friend" in which Sir Thomas Browne refers to a condition, which is of interest to a pediatrician, but the nature of which has apparently hitherto remained obscure.

It is suggested that the disease called by him the Morgellons is a disease that caused considerable interest in the seventeenth and eighteenth centuries, known under a variety of names such as Les Crinons, Masclous, Masquelons, from which it is suggested the name Morgellons is derived.

The nature of the malady is described, and a brief account given of its history. A further suggestion is tentatively put forward enabling a date to be advanced for the writing of "A Letter to a Friend."

REFERENCES

1. Browne, Sir Thomas. Works. Ed. by Geoffrey Keynes, London, Faber & Gwyer, 1931, 1: 171.
2. Greenhill, W. A. Sir Thomas Browne's Religio Medici, etc. London, Macmillan. 1926, p. 296, note for p. 135, line 15.
3. Browne, Sir Thomas. *Loc. cit.*, 5: 95.
4. Wilkin, S. Sir Thomas Browne's Works. London, Pickering, 1836, 1: iv.
5. Gosse, Sir E. Sir Thomas Browne. London, Macmillan, 1924, p. 10.
6. Michelet, J. Histoire de France au dix septieme siècle. Paris, Lemerre, 1887, 1: 392.
7. Dom Devic and Dom Vaissete. Histoire générale de Languedoc. Toulouse, Privat, 1889, 11: 1049.
8. Michelet, J. *Loc. cit.*, 2: 51.
9. Astruc, J. Mémoires pour servir a l'histoire de la Faculté de Medecine de Montpellier. Paris, Cavelier, 1767, p. 257.
10. Bibliotheca Osleriana. Oxford, 1929, p. 409, No. 4532.
11. Letts, M. Notes and Queries. London, Francis, 1914, Ser. XI, 10: 321.
12. Velshius, G. H. Exercitatio de vena medinensi, etc. Augustae Vindelicorum, Goebelius, 1674.
13. Letts. *Loc. cit.*, p. 322.
14. Duloir. Voyages du Sieur Duloir. Ed. Charpentier, Paris, 1654.
15. Greenhill. *Loc. cit.*, p. 298. Note p. 136, line 27.
16. Leonellus Faventinus. de Victorius. Practica medicinalis et tractatus de aegritudinibus infantium cum Appendix ad eundum per Georgium Kufnerum Juniorem. Lugdun apud Vincentium, 1574, p. 81, cap. XII.
17. Still, G. F. The History of Paediatrics. Oxford Univ. Press, 1931, p. 107.
18. Schenckius, J. Obs. med. rar. Francfort, Beyer, 1665, p. 703.
19. Astruc, J. *Loc. cit.*, p. 349.
20. Montuus, H. De infantum febribus, etc. Lugduni, Tornaesius & Gazius, 1558, p. 13.
21. Still, G. F. *Loc. cit.*, p. 133.

22. JOHNSON, T. N. The works of that Famous Chirurgeon, Ambrose Parey. London, Clarke, 1678, p. 215.
23. JOHNSON, T. N. *Loc. cit.*, p. 713.
24. GUILLEMEAU, J. The Nursing of Children. London, Anne Griffin, 1635, p. 116.
25. AUSTRIUS, S. De puerorum morb. Lugd., 1549.
26. FERRARIUS, OMNIBONUS. De arte med. infantum. Brix., 1577.
27. HUCHER, J. De sterilitate utriusque sexus. Coloniae Allobrogum, Crispinus, 1610, p. 744.
28. PIC. Guy Patin. Paris, Steinheilt, 1911, p. 44.
29. GESNER, C. Opera. 4 vols. Tigur. 1551. (Presumably Historiae animalium, Tiguris, apud Froschenerum, 1551.)
30. NORDENSKIOLD, E. The History of Biology. London, Kegan Paul, 1929, p. 93.
31. ALDROVANDUS, U. Monstror. hist. Bonon., 1642. Musaeum metallicum. *Ibid.*, 1648. Serpent. & draconum hist. *Ibid.*, 1640. Quadrupedum bisulc. hist. *Ibid.*, 1642. De quadrupedib. digitatis viviparis & oviparis, 1637. Ornithologia sive de avibus hist. Franc., 1610. De quadrupedib. Animalibus & piscibus. *Ibid.*, 1623.
32. GOSSE. *Loc. cit.*, p. 77.
33. BROWNE, SIR THOMAS. *Loc. cit.*, 2: 291.
34. MONTUUS, H. De activa med. scientia. Lugd., 1557.
35. MONTUUS, H. Anasceves morborum. Lugd., 1560.
36. ASTRUC, J. *Loc. cit.*, p. 246.
37. BORELLI, P. Hist. et obs. cent. prima. Castris, Colomerius, 1653, p. 88.
38. MISTRAL, F. Lon. tresor dou felibrige. Ed. du Centenaire. Paris, Delagrave, 1932.
39. ETTMULLER. Acta eruditorum. Lipsiae, Grossius, 1682, p. 316.
40. REDI, F. Osservazioni intorn alli pellicelli del corpo umano. (Published by Redi, under the name of Bonomi, in Florence, 1687, in the form of letters, and in effect constituting the 1st edition of Cestoni's Observations.)
41. BRUMPT, E. Precis de parasitologie. Paris, Masson, 1922, p. 719.
42. ANDREY, M. De la generation des vers. Paris, la veuve Alix, 1741, p. 125.
43. LE CLERC, D. A Natural and Medicinal History of Worms. London, Wilcox, 1721, p. 280.
44. LEUWENHOECK, A. Arcana naturae. Delphis, Bat. Krooneveld, 1695, p. 46.
45. BASSIGNOT, M. *Hist. et Mem. Soc. Roy. de Med.* (Memoires), pp. 173–176, 1779.
46. WOLF, J. G. Dessertatio inauguralis medica de comedonibus. Lipsiae, Klaubarthia, 1789.
47. *Journal de Medecine*. Paris, 87: 430, 1791.
48. BRUGUIÉRES. Encyclopedie methodique. Histoire naturelle des vers. Paris, 1792, 1: 137.
49. LAENNEC, R. T. H. Dictionnaire des sciences médicales. Paris, Panckoucke, 1813, 1: 365.
50. SIMON, G. Dict. de med. comp. (Rayen.)
51. KÜCHENMEISTER, F. On Animal & Vegetable Parasites. London, Sydenham Soc., 1857, 2: 15.
52. CROCKER, R. *Lancet*, 1: 704, 1884.
53. CAESAR, J. *Lancet*, 1: 1188, 1884.
54. MACLEOD, J. M. H. *Proc. Roy. Soc. Med.*, (Dermat. Sect.) 1: 14, 1907–08; 7: 11, 1913–14; 11: 111, 1917–18.
55. CAUTY, H. E. *Lancet*, 1: 12, 1882.
56. HARRIES, E. H. R. *Brit. J. Dermat.*, 13: 5, 1911.
57. DORE, S. E. *Proc. Roy. Soc. Med.* 2: 130, 1908–09. (Dermat. Section).
58. FOX, T. C. *Lancet*, 1: 665, 1888.
59. GLISSON, G., BATE, G., and REGEMORTER, A. A Treatise of the Rickets, Being a Disease common to Children. Trans. by Phil. Armin., London, Cole, 1681, p. 193.
60. MICHELET. *Loc. cit.*, 1: 246.

EARLY MEDICAL MAGAZINES IN AMERICA

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THE position of a profession is usually reflected in its magazines. If it has a high standard, and if its members are interested and active in their chosen field, the magazines will also have a high standard and their pages will be filled with interesting and thought-provoking communications from the members. The unorganized and even ignorant state of the medical profession in early America is seen in the lack of such publications during the colonial era and the poor grade of those published at a later time. A study of these periodicals, however, is interesting not only from the antiquarian's point of view but also in the content which the early physicians found of value and the constant improvement from the first publication in 1797 to the middle of the century.

Although medical articles appeared in *The Columbian Magazine* and the *American Museum*, no periodical with medicine as its central theme appeared until Samuel Latham Mitchill brought out *The Medical Repository* in 1797 in New York City. Mitchill was the type of innovator who often appears in any field. Although he had taken his degree in medicine, he was not a practicing physician and his many interests from politics to language detracted from whole-hearted development of any side of his character. To us much of the *Repository* is amusing and much is valueless. From an historical outlook, however, it is of importance. It furnished the American physician with his first regular publication of medical news and information. As the forerunner in a new field, it set an example, not always good, to the profession as to what might be done in the way of publication. Beginning with the *Repository*, as it was commonly and affectionately called, medical magazines were published with rapidity until by 1850 the number far exceeded the need or the demand.

During the years from 1797 to 1850 one hundred and seventeen titles of medical magazines appeared. Naturally many fell by the wayside or were merged with more successful competitors; but the number shows the impetus within the profession to spread its ideas and probably to get a share in the glory and the financial gains—which were small. Analysing these publications by decades, we find that from 1800 to 1810, six magazines were founded. These included the *Charleston Medical Register* edited by David Ramsey in 1803; *The Philadelphia Medical Museum* edited by John Redman Coxe founded in 1804 and continuing until 1811; *The Baltimore Medical and Physical Recorder*, conducted by Tobias Watkins for the two years of its life, 1808 and 1809; and *The New York Medical and Philosophical Journal and Review* which was published in New York from 1809 to 1811 but evidently could not compete with the more popular *Repository*. The expansion during this period was logical in that these magazines were published in cities which served a fairly large section.

This sectional expansion reached New England with the founding of *The New England Journal of Medicine and Surgery* in 1812 which after its merger with the *Boston Medical Intelligencer* in 1828 as *The Boston Medical and Surgical Journal* was to serve that section until the present day. Besides this New England journal nine others were brought out during these years. All were published in Philadelphia, New York and Baltimore. From 1820 to 1830, twenty-eight new names appeared. But among these some of the more scientific and important magazines made their appearance. *The Boston Medical and Surgical Journal* has already been mentioned. The purpose which this magazine served in New England was duplicated by a merger of greater importance in Philadelphia. *The Philadelphia Journal of Medical and Physical Sciences*, of 1820 "supported by an association of physicians and edited by N. Chapman," merged, in 1828, with the *Philadelphia Monthly Journal of Medicine and Surgery* to form *The American Journal of the Medical Sciences* which under the leadership of Chapman and Isaac Hays was to become one of the foremost if not *the* foremost medical magazine in the United States. Publication, following the frontier at a discreet distance, crossed the Alleghenies in this decade and John D. Godman published *The Western Medical and Physical Journal* at Cincinnati which merged in 1828 with Guy W. Wright's and J. M. Mason's *Ohio Medical Repository of Original and Selected Essays and Intelligence*, founded in 1826, to form *The Western Journal of Medical and Physical Sciences* under the editorship of Daniel Drake. This periodical was discontinued in 1838 to be revived in 1840 and consolidated with *The Louisville Journal of Medicine and Surgery* as *The Western Journal of Medicine and Surgery*. The expansion southward led to the founding of *The Carolina Journal of Medicine, Science, and Agriculture* in 1825 but the attempt was over by 1826. New developments more important, possibly, than the sectional dilatation were the specialization in *The Vaccine Inquirer* which ran through five numbers in Baltimore from 1822 to 1824 and *The Journal of the Philadelphia College of Pharmacy* founded in 1825 and merged with *The Journal of Pharmacy* in 1835.

Of the twenty-nine new titles listed during the decade 1830 to 1840, only two medical periodicals were of importance. The first of these was *The Baltimore Medical and Surgical Journal and Review* of 1833, edited by E. Geddings, which became *The North American Archives of Medical and Surgical Science* in 1834. *The Eclectic Journal of Medicine* and its partner *The Select Medical Library* begun by John Bell in 1836 and continued by him as *The Select Medical Library and Bulletin of Medical Science* until 1846 was not only a magazine with the usual cases and news but also a reprint of the valuable published works. Its cost prevented a large circulation and it failed to exert the uplift which it anticipated. The geographical expansion continued with the founding of *The Southern Medical and Surgical Journal* by Milton Antony and Joseph A. Eve at Augusta, Georgia in 1836, and *The Louisville Journal of Medicine and Surgery* under L. P. Yandell, H. Miller and T. S. Bell in 1838 for a brief life of two numbers but a longer subsequent career when it was revived and merged with *The Western Journal of the Medical and Physical Sciences* in 1840 to form *The Western Journal of Medicine and Surgery*. One of the marks of the period is the separation of the field of dentistry from that of general medicine. *The American Journal of Dental Science* of 1839 published (an unusual procedure) in New York City, Boston, Philadelphia and Baltimore made clear the extent of this separation for the magazine evidently had sufficient support from those interested in dentistry. The increased consciousness of the social purpose of medicine is brought out by two magazines, *The Cholera Gazette* of 1832, a weekly edited by Isaac Hays of Philadelphia, and *The Cholera Bulletin* of the same year put out by an "Association of physicians" three times a week in New York from July 9th to August 31st of the same year. Cholera running through Europe reached America in 1832 and the profession organized as effectively, which is not to say successfully, as possible to stop the plague. These two bulletins were the attempts of medical men to reach the public and physicians with all possible information.

Of the new magazines appearing in the field of medicine from 1840 to 1850, during which time there were forty-four, none was of any lasting importance. The more specialized magazines, however, showed a growing knowledge and grasp of medicine. With regard to the general medical magazine these years merely continued the expansion throughout sections hitherto dependent upon the more settled sections of the country. It meant that the medical profession was more interested; and it probably helped in the organization in 1846 of the American Medical Association. The growth of magazines is seen in *The Buffalo Medical Journal* of 1845 under the editorship of Austin Flint, the development of a periodical for the region west and north of Ohio in *The Illinois Medical and Surgical Journal* of 1844, which became *The Illinois and Indiana Medical and Surgical Journal* in 1846 and assumed its sectional aspect in 1848 under the title of *The Northwestern Medical and Surgical Journal*. Medical publication crossed the Mississippi in 1843 with the founding of *The Saint Louis Medical and Surgical Journal* which, in 1848, absorbed *The Missouri Medical and Surgical Journal*. The Southwest was finally provided with monthly medical news by *The New Orleans Medical Journal* in 1844 and which after merging with the projected *Louisiana Medical and Surgical Journal* in 1845 became the successful *New Orleans Medical and Surgical Journal*. The south Atlantic states finally had a permanent magazine in *The Southern Journal of Medicine and Pharmacy* edited by J. L. Smith and S. D. Sinkler in 1846 and 1847 and continued by P. C. Gaillard and H. W. DeSaussure as *The Charleston Medical Journal and Review*. Thus by 1850 all of the settled portions of the country were furnished with medical publications of varying degrees of value but almost all of them finer than the earlier publications. *The American Journal of Insanity*, begun at Utica, New York, by the medical officers of the New York State Lunatic Asylum as a quarterly study of the progress of the treatment of the insane, in 1844, was ably published and furnished a source of information and a check-up on the progress of the reform in a field practically neglected until 1830. *The American Annals of the Deaf and Dumb* of 1847 emanating from Hartford, Connecticut satisfied a similar need to that of the *Journal of Insanity*. Wood's *Quarterly Retrospect of American and Foreign Practical Medicine and Surgery* for the two years from 1847 to 1849 reflects the increasing interest on the part of the profession in bibliography. Stockton and Co.'s *Dental Intelligencer* of 1843 with its advertising and scientific studies represents the attempt of a commercial company to advance its products within the profession. Within the dental profession itself the country, by 1847, was able to support *The Dental Register of the West* in addition to *The American Journal of Dental Science*.

A discussion of these publications by numbers and titles for the decades would be misleading without a qualifying discussion on the life of the magazines. A simple study of them and their duration can be reached by classifying them by the number of years which they ran and considering mergers and continuations under new titles as one magazine. Such a simplification brings the total number under consideration to ninety-five magazines. Of these nineteen did not last one year; eight lasted one year; sixteen ran for two years; thirteen continued for three years; eight ran from four to seven years; and six lasted for nine to fifteen years; and one, *The Medical Repository*, ran for twenty-four years with various interruptions. In 1850 twenty-four magazines were in circulation, of which *The Boston Medical and Surgical Journal* had its beginnings in 1812 and *The American Journal of the Medical Sciences* dated from 1826. With these exceptions it is apparent that the average expectancy of a medical magazine was not great.

With regard to place of publication New York with twenty-five magazines, Philadelphia with nineteen, Boston and Baltimore with ten each were the centers of publication. Periodicals were published in Charleston, Augusta, Memphis and New Orleans in the South; five were published at Cincinnati and two at Columbus in Ohio; and one each at Chicago and Indianapolis, St. Louis, Lexington, Buffalo, Utica, and Hartford, Connecticut. Publication of the same magazine in various cities was not common. Cases existed of joint publication at Cincinnati and Lexington, Cincinnati and Louisville; *The United States Medical and Surgical Journal* was published in New York and Philadelphia; *The American Journal of Dental Science* was issued in New York, Philadelphia, Boston and Baltimore; and *The Transylvania Medical Journal* was published in Lexington and Louisville. But these were the only cases of such publication. The whole country was thus furnished with medical magazines. Since they differed rather in merit than in organization it is possible to study them as groups.

The methods of editing were three. In some cases an editor took command for a publisher and selected the materials from the contributions which happened to come in. At other times associations of physicians were formed and took general charge of the work and its arrangement. Thus *The New England Journal of Medicine and Surgery* printed the following notice in 1824:

> *The New-England Journal of Medicine and Surgery* will in future be conducted by the subscribers who have previously formed part of the Association, by which it has been hitherto supported. The other gentlemen of the Association have relinquished all share in its management, and are to be considered as entirely free from any responsibility with regard to the manner in which it shall be conducted. The present Editors, however, have reason to believe, that as individuals, they will still continue to manifest an interest in its success, and contribute by their labours to its reputation and usefulness.[1]

The notice was signed by Walter Channing, Jr., and John Ware. Still another type of publication was that of *The Transylvania Medical Journal* which was published by the faculty of the Transylvania Medical College. To follow the changes which took place in the editorial departments of these journals would lead one into a confusion of names.

Throughout the period the contribution of articles and news seems to have been voluntary and from the subscribers. There was some effort to get reports on certain subjects and upon certain conditions, particularly the efforts made by Samuel Latham Mitchill for a survey of diseases of localities and for geographical conditions. Evidence is completely lacking, however, that these articles were paid for. A departure from this method of relying upon voluntary contributions and extracts (a very common practice) from other magazines was the large list of collaborators in *The American Journal of the Medical Sciences* which among others included Jacob Bigelow of Harvard, Nathaniel Chapman of the University of Pennsylvania, W. E. Daniel of Savannah, J. B. Davidge of the University of Maryland, S. H. Dickson of the Medical College of South Carolina, Thomas Fearn of Alabama, David Hosack of the Rutgers Medical College and New York City, and Thomas Sewall of the Columbian Medical College of Washington, D. C. Another departure of this magazine from accepted procedure was its announcement in 1828 that henceforth it would not accept anonymous contributions.[2] As many magazines as could afford it made arrangements with European doctors for material and reprints. In this connection *The Philadelphia Journal of Medical and Physical Sciences* announced in 1825 that:

> By the recent visit of one of our publishers to Europe, extensive arrangements have been made to obtain for this Journal a regular supply of the most esteemed medical and scientific periodicals published in France, Germany, Italy &c. as well as the new medical works which from time to time may appear in those countries. . . .[3]

The charge seems to have been fairly frequent that the medical magazines were used by certain groups to support their claims. The New York *Dissector* felt the necessity of printing the following advertisement upon its cover.

> . . . The novel experiment of a perfectly independent Medical Journal, unaffected by the sunshine or the shadow of professional influence, has been made with firmness and regarded with success. That it has been followed by a more decided revolution in the opinions and practice of his professional brethren, than his utmost confidence in the force of truth had induced him to expect. . . .[4]

Again so respectable a weekly as the *Medical Intelligencer* of Boston protested in 1825 that:

> . . . We are perfectly independent, and neither care for the frowns of those who dislike us, nor the envy of those who make themselves miserable in railing against our manner of writing medical reports.[5]

Undoubtedly this condition of bickering within the profession had much to do with the rise and fall of various editors and publications and the condition in New York which saw the beginning and end of many an effort and which was without a medical journal in 1837.[6]

The cost of publication was so high that the journals had great difficulty in supporting themselves. *The Boston Medical and Surgical Journal*, in 1836, exclaimed, " . . . There is not a profitable Medical Journal in this country—and what is still more surprising, there never was one—and worse still, there is not likely to be one."[7] The subscription rates which were to take care of expenses ran from one dollar fifty cents to five dollars. *The New York Medical and Philosophical Journal* of 1809 sold for seventy-five cents a copy and was a semi-annual publication.[8] *The Boston Medical and Surgical Journal* sold for two dollars when it came out in 1828. *The Philadelphia Medical and Physical Journal* sold for five dollars in 1824.[9] *The Baltimore Philosophical Journal and Review* was unsuccessful at five dollars per year.[10] *The American Journal of Dental Science* cost three dollars per year.[11] The price of this magazine and *The Illinois and Indiana Medical and Surgical Journal* at two dollars per year are more representative than the extremes.[12] The other source of income was the advertising which was run on the covers. This was not large as a survey of any number of journals will show. As late as 1843, *The Boston Medical and Surgical Journal*, a weekly publication so large that it was then issued in two volumes a year, wrote:

> . . . As the present plan of a distinct advertising sheet will probably accommodate all who may in future wish to avail themselves of it, we hope to meet the expectations of all. It may be understood, therefor, in future, that the advertisements of publishers, booksellers, druggists, instrument makers, importers, medical schools, hospitals, societies, and all other medical notices, can have ready attention, and be allowed to remain in type according to the directions of those who order them.[13]

The foregoing quotation not only gives the amount of space allotted to advertising but the type of advertising as well. This does not exactly fit the picture of the report on Medical Literature issued by the committee to the American Medical Association in 1848. It states:

> The advertising portion of the journals seem to be considered by some editors as beyond the jurisdiction of medical ethics. It is to this opinion, or more probably to mere inadvertence, that the physician owes the privilege of reading before he opens one of the prominent journals, the notice of one Dr. Beach's Medical Works, for which he has received numerous gold medals from the various crowned heads of Europe, and diplomas from the most learned colleges in the old World.[14]

The fact that the publisher often had much to do with publication and the need of money may have driven many editors to such advertising. The rates of *The American Journal of the Medical Sciences* for 1838 certainly were not exorbitant with one page at six dollars and one half or less portion of a page at three dollars.[15] These were the subscription and advertising rates of the medical journals which came from the presses usually in monthly editions, often in quarterly, semi-annually, bi-monthly, and in very few cases, weekly.

A survey of the contents of the magazines gives a picture of the interests of the profession. The mechanics of the organization were, usually: (1) the reports or cases under the heading "original communications"; (2) the "selections" or reprints from other magazines here and abroad; (3) reviews of recent publications; and (4) news which included the medical colleges, other publications, an occasional editorial, medical societies, and mere chit-chat. The general background of the profession prevented the journals from great advances in scientific subjects. Furthermore scientific knowledge did not increase rapidly enough to supply monthly magazines with news. The purposes which represent their highest idealism were stated by the *Medical Repository* in 1803:

> Our leading objects since the first establishment of this work uniformly have been, to form a centre of communication for the contributors to science in all parts of the United States; to rescue from oblivion the fruits of the experience and observation of medical brethren, . . . to allure men of talents from the inactivity which diffidence and retirement are too apt to impose, by soliciting their communications, to give early and authentic information of all such discoveries and improvement in every part of the civilized world as fall within the limits assigned to our publication to offer some small return to the learned nations of Europe, for the obligations we owe them as our original instructors and parents in science; and, finally, to institute a national work, which may assist similar designs elsewhere in exciting the energies, developing the productions, and hastening the maturity of a young and rising empire. How far we have succeeded in these endeavors, is willingly submitted to the candour and justice of the public.[16]

As a "centre of communication" the magazines furnished a very valuable service to medicine.

The pages of the journals were filled with descriptions of the prevalent diseases. The *Medical Repository* spent much space contending that the origin of yellow fever was local. Its twenty-first volume carried a series of papers on the "summer epidemic of Yellow Fever" in North America and the West Indies. Volume XVIII contained a systematic study of the "Winter Epidemic" of 1812-13–14–15. Yet the change of spirit is plainly seen in the early controversy between Priestly who favored the vague theory of phlogiston and Waterhouse who objected which appeared in the early volumes and the controversy between Dr. Ives and Dr. Chatard over the use of ergot in labor which appeared in Volume XXI. To stress the more positive scientific use of the journals we find that they printed these discussions of ergot and other new drugs. The first publicity given to the anesthetic use of ether appeared in *The Boston Medical and Surgical Journal.* All of these discoveries were brought to the attention in the magazines. And because they appeared in such a medium, they reached a far greater number of physicians than if they had appeared in more expensive publications. When the journals promulgated new methods and means, they performed a service which far outweighed their publication of mid-wives' tales.

In general scientific principles the periodicals served more than might be expected. They constantly kept before their subscribers the need of dissection and a solid basis in anatomy.[17] The constant adulteration of drugs was a source of worry to the editors and contributors.[18] Here and there voices were lifted condemning the use of drugs and the usual methods of treating disease. In this vein, *The Boston Medical Intelligencer*, in 1826, wrote that, "By diet and regime, for example, more may be done for a dyspeptic than by calomel, bark, or brandy. . . ."[19] This stress on the use of diet was partly a reaction to the inadequacies of the old methods and also to the success of the quack. It was carried further in the *Health Journals* in which field Graham eventually became immortalized in a cracker. In these journals and in many others during the 1840's there was a growing demand for physical education. In *The Journal of Health and Monthly Miscellany* Walter Channing, a well-known Boston physician, ran four articles on this valuable adjunct of a healthy life.[20]

As with science so with education, quackery, organization and laws, the periodicals worked for the betterment of the profession. They watched with considerable attention the work of the quack and discussed him in article after article. They, regularly, printed news of whatever colleges sent information; the larger magazines made special efforts to obtain it and the local magazines limited their news to their sectional colleges. Frequent surveys showed the comparative status of the profession in various districts with regard to numbers, fees, and educational facilities. This activity stirred the profession to action and it is noteworthy that the magazines more than the colleges were instrumental in fostering the Medical Convention which led to the formation of the American Medical Association. Outside purely professional advancement the journals attempted to push the causes which they deemed worthy. They supported the cause of temperance and the *Repository* even made a study of the saloons in New York City[21] and the conditions of working men.[22] Even the bawdy house situation was subjected to examination.[23] These and the water conditions of New York and Philadelphia,[24] although more definitely part of a magazine entitled *Repository*, were considered proper subject matter for a medical magazine.

Reviews of recent books appeared in the pages of the journals. Although the reviews in *The American Journal of the Medical Sciences* were the most fair, the treatment of the author usually depended upon the attitude of the editors towards him. The ordinary procedure was that an author would send his book to the magazine. The point of view of the author is brought out in a letter from Charles Caldwell to a friend in Philadelphia in which he says:

> . . . Permit me to ask your acceptance of a copy of my late Indiana address, of which I send you two. The other you may give, if you think proper, to some one of the Editors of your city, and let him notice, *if* he please. . . . As a writer I ask no favours; and from the Philadelphia press I have no reason to expect any. It has never been friendly to me—but the *reverse*—I have never bowed to it, nor in any way flattered it—and never will. Other *presses in this* and other lands have done me justice—and that is enough.[25]

The reviews could be caustic at times and varied greatly with the personal feelings involved. Of David Hosack's monograph on "Febrile Contagion," the *Medical Repository* said,

> We will now take leave of this academic nondescript and its author, in the hope that when we next hear from him, if it be not on a subject more interesting, it will at least be in a manner less offensive; for if anything can exceed the mortification of being obliged to write these remarks, it is the conviction we feel that they are but too well merited.[26]

This remark was made in the course of a twenty-five page review of a fifty-one page book. *The Philadelphia Journal of Medical and Physical Science* could say on the same subject,

> Differing as we do, from Dr. Hosack, in our views of the origin of yellow fever, we can never cease to applaud the talent, industry and success, with which he has investigated the subject. To him we think is especially due the credit of establishing the fact of the insusceptibility of the system to a repetition of an attack of the disease. . . . [27]

Hosack at that time, 1820, was a professor in the College of Physicians and Surgeons and six years later was to be a leader in the founding of the Rutgers Medical College after the attack upon the faculty of the College of Physicians and Surgeons. He was too active a man to remain outside the professional quarrelling prevalent in New York at that time. If the *Repository* did not find sufficient reason therein for its criticism, it could be found with his point of view on the origin of yellow fever which did not hold with the generally accepted local origin theory; New York City preferred the latter theory and to keep its harbor open during the summer months. The vast majority of reviews reflected too much vanity and verbosity and not enough sincerity. Often they turned aside from the medical field to notice books of little relation to their field. The subscriber, with the exception of very few journals, could not expect a comprehensive survey of medical publication. Occasionally he should have profited when, for instance, the *New York Medical and Physical Journal and Review*, recognizing the low grammatical level of the profession, reviewed "An English Grammar: comprehending the Principles and Rules of the Language."[28]

The relations among the magazines were on a higher plane than the reviews. The lesser journals were inclined to take sharp points of view such as *The American Medical Recorder* which disparaged *The Philadelphia Journal of Medical and Physical Science* for its somewhat loud patriotism, but it was a case of journalistic envy.[29] Or when a fly-by-night publication appeared the older magazines might take it to task as the *Boston Medical Intelligencer* gave advice to the *Aesculapian* to which the latter replied by pointing to its success without the aid of the older magazine,[30] and then twenty-six issues later wound up its business with the statement,

> . . . We find a weekly Register in this city where three or four Quarterly Medical Journals are published, by no means encouraged, either by communications which may interest the Editors, or by punctuality in complying with the terms of subscription, in which the publisher alone is concerned. . . . [31]

The spirit of the larger journals is seen in the following which appeared under the heading, "New Periodical Publication," in *The New York Medical and Physical Journal and Review* in 1810:

> The first number of a new periodical work, to be continued quarterly, was published early in July, by Mr. Ezra Sargent, of this place. The principal object of the editors who are anonymous, is we believe to advocate the foreign origin of Yellow Fever. Periodical works, however numerous, can scarcely be productive of injurious consequences to the public, and are almost necessarily beneficial, at least in a degree, as they excite discussion, and by multiplying the number of writers, are the means of saving *facts* which might otherwise be lost.[32]

In 1825 *The Philadelphia Journal of Medical and Physical Sciences* welcomed *The North American Medical and Surgical Journal*[33] and two years later *The Boston Medical Intelligencer* praised the same magazine liberally in an editorial.[34] As late as 1840 *The Boston Medical and Surgical Journal* announced *The Homoeopathic Examiner* with a statement of its editor and a wish that it would receive the magazine regularly in order to transcribe to its own pages whatever it might find of "utility to the profession at large."[35]

Whatever minor dissensions might appear among the journals, they joined in the prevalent nationalism. The cultural dependence of America upon England has always irked many and at times led to extravagant statements. It was this spirit which caused *The American Journal of the Medical Sciences* to run as its foreword the best example of British snobbery in the *Edinburgh Review* in the statement that:

> In the four quarters of the globe, who reads an American book? or goes to an American play? or looks at an American picture or statue? *What does the world yet owe to American Physicians or Surgeons?*[36]

The Medical Repository, despite its statement of indebtedness to Europe, started this self-conscious nationalism and it continued in varying degrees throughout the period. At times it took a bombastic vein as it did in the Prospectus of the *Emporium of Arts and Science* which stated:

> . . . It is remarkable that notwithstanding the scattered state of our population, our citizens are better informed and have fewer prejudices than any people upon the globe. Liberty, the surest pledge of free inquiry, is one prime source of the advantages we enjoy. Unfettered in our press—unshackled in our conscience, man here possesses means of happiness as perfect as is consistent with his nature. . . . [37]

At other times the journals basked in the light of foreign praise, as when the *Medical Repository* quoted an English physician as saying that with the exception of vaccination America had done more than any other country to advance medicine. The *Repository* goes on to suggest that British publications give Americans credit instead of lifting whole articles and allowing the public to think them British.[38] Petty chauvinism alone characterized the objection on the part of *The Philadelphia Journal of Medical and Physical Science* to the appointment of an Englishman to the Virginia Institute of Medicine when an American could have been obtained.[39] And in 1831, *The Boston Medical and Surgical Journal* became positively indignant when the *Lancet*, an English publication, suggested that poor English doctors came to America—which suggestion held a high degree of probability.[40] This nationalistic spirit was inevitable when American medicine had so little to give the world; as the profession improved and contributed to the general store of knowledge such bombast would be unnecessary.

It is apparent that the medical magazines throughout this period left much to be desired but with the passage of time many of the absurdities disappeared. There was a decided change from the early *Medical Repository* with its dissertations on "Manures" and whatever, for the moment, interested S. L. Mitchill, to the later magazines such as *The American Journal of the Medical Sciences* in the general field and *American Journal of Insanity*, *The Dental News Letter*, or the *Medical and Surgical Register* of 1818 to 1820 with their work in their special fields. When *The Boston Journal of Philosophy and the Arts* expired in 1830, the old medical periodical which had to rely upon an association with the other sciences disappeared in the East. As the cultural frontier spread West, the early necessity of association between medicine and allied topics was repeated but the magazines of the frontier or semi-frontier regions never became quite as discursive as the early journals had been. The imagination of Mitchill with his suggestion of *Fredon* as the name for *America; "Fredonian* a sonorous name" for citizen; *Frede* as a short name; *Fredish* as an adjective[41] was never duplicated. Nor was it necessary to publish a recipe for beer under the caption, "To the Lovers of Good Beer"[42] or note the invention of an onion planting machine.[43] More magazines would have been useful to the medical students of 1850 than the few, *The American Journal of the Medical Sciences*, *The North American Medical and Surgical Journal*, and *The New England Journal of Medicine and Surgery* recommended by the Massachusetts Medical Society in 1832.[44] Again the early attacks upon the mere suggestion of the natural "savagism" of man or the possibility of descent from an animal ancestor do not appear.[45] By 1829, *The American Journal of the Medical Sciences* could note with justifiable pride that:

> Professor Jackson's Case of Mercurial Irritation, is copied into the London Medical and Physical Journal for July, 1829; and the Journal des Progrés, Vol. XV. His first Clinical Report is noticed in the Annales de la Médicine Physiologique, No. for May, 1829. His Case of Malignant Intermittent is copied in the Medico-Chirurgical Review, for July last; . . . [46]

and continue the list for five more quotations of magazines in Europe in which Professor Jackson's articles had been reprinted. Thus, with all their faults of meager knowledge, reprinting, personal feuds, petty reviewing, and nationalism, the periodicals did show improvement. The harshest criticism possible came from within the profession itself in the report to the American Medical Association in 1848 which said:

> The proportion allotted to these several divisions varies very much. Taking into consideration the usual difference of type in the original and borrowed matter and the very liberal extracts which the reviewers commonly make from the work before them, it will be found that a very large part of all the journals is made up of quotations; and to a considerable extent of the same quotations, whatever may be the particular journal examined. The committee have been struck with the fact, that the same articles have been presented over and over again to the notice, in many different periodicals, each borrowing from its neighbours the best papers of the last preceding number, so that the perusal of many is not so much more laborious than that of a single one, as would be anticipated. The ring of editors sit in each other's laps,

with perfect propriety, and great convenience it is true, but with a wonderful saving in the article of furniture.[47]

REFERENCES

The first part of this article is based upon the magazines obtainable in the Surgeon General's Library in Washington and those to be found in New York City and Philadelphia. The Surgeon General's Index furnishes titles which are not always obtainable.

1. *New England Journal of Medicine and Surgery*, Boston, 13: 336, 1824.
2. *The American Journal of Medical Sciences*, Philadelphia, Vol. 4, 1828–9. Notice.
3. *The Philadelphia Journal of Medical and Physical Science*, Philadelphia, vol. 11, 1825. Notice to readers.
4. *The New York Dissector*, New York, vol. 3, 1846. Notice.
5. *Boston Medical Intelligencer*, Boston, 3: 67, 1824.
6. *The Boston Medical and Surgical Journal*, Boston, 16: 305, 1837.
7. *Ibid.*, 15: 240, 1836.
8. *New York Medical and Philosophical Journal*, Volume I. N. Y. 1809. Flyleaf.
9. *Phila. Jour. of M. and Phys. Sc.* Vol. 9, 1824. Cover.
10. *The Baltimore Philosophical Journal and Review*, Baltimore, Vol. I, 1823. Cover.
11. *The American Journal of Dental Science*, N. Y., Bost., Phila. and Balt. 1: 7, 1839.
12. *The Illinois and Indiana Medical and Surgical Journal.* Chicago and Indianapolis, Vol. 1, 1846. Cover.
13. *Bost. M. & S. J.*, 28: 23, 1843.
14. *American Medical Association. Reports*, p. 284, 1848. This was in the report of the Committee on Medical Literature.
15. *Am. J. M. Sc.*, 22: 259, 1838.
16. *The Medical Repository*. New York, 6: ix, 1803.
17. *N. Y. M. & Phil. J.*, 2: 67, 1810. Gives a good example of an early plea for such reform.
18. *Med. Repos.*, 2: 224–225, 1798. Contains an article by John Maclean Professor of Chemistry in the College of New Jersey on the "Nature of Septic Gasses" and an article in *The American Journal of Pharmacy* 1. Philadelphia, pp. 11–13, 1835.
19. *Bost. Med. Intel.*, 4: 54–55, 1826–27.
20. *Journal of Health and Monthly Miscellany*, pp. 170–172; 193–197; 225–230; 295–299, 1847.
21. *Med. Repos.*, 7: 89.
22. *Ibid.*, 6: 333–334.
23. *Ibid.*, 7: 90–91.
24. *Ibid.*, 3: 65.
25. *Pennsylvania Historical Society. Dreer Collection.* 1. Letter dated October 24, 1836. Ms.
26. *Med. Repos.*, 21: 229, 1821.
27. *Phila. J. of M. & Phys. Sc.*, 1: 443, 1820.
28. *N. Y. M. & Phil. J.*, 2: 272–283, 1810.
29. *The American Medical Recorder*, Philadelphia, 4: 169–208, 1821.
30. *The Aesculapian Register.* Philadelphia, 1: 44–45, 1824.
31. *Ibid.*, p. 198.
32. *N. Y. M. & Phys. J.*, 2: 285, 1810.
33. *Phila. J. of M. & Phys. Sc.*, 11: 416–417, 1825.
34. *Bost. Med. Intel.*, 5: 391, 1827–28.
35. *Bost. M. & S. J.*, 22: 82, 1840.
36. *Phila. J. M. & Phys. Sc.*, 1: 1820. Cover.
37. *The Emporium of Arts and Sciences.* Philadelphia, Vol. 1, 1812. Prospectus.
38. *Med. Repos.*, 11: Pref. iv-v.
39. *Phila. J. M. & Phys. Sc.*, 9: 400–409, 1824.
40. *Bost. M. & S. J.*, 3: 115–116, 1831.
41. *Med. Repos.*, 6: 449.
42. *Bost. Med. Intel.*, 4: 334, 1826–27.
43. *Med. Repos.*, 2: 105, 1798.
44. *Massachusetts Medical Society*. Minutes. Boston, 5: 71–79, 1832.
45. *N. Y. M. & Phil. J.*, 3: 81, 1811, and *Ibid.*, 1: 42, 1809.
46. *Am. J. M. Sc.*, 5: 8, 1829–30.
47. *A. M. A. Proc.*, 1: 256, 1848.

THERAPY IN GONORRHEA

AN HISTORICAL REVIEW

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BROOKLYN N. Y.

THIS compilation was undertaken in the hope that the polypragmatic method of treatment which still prevails at the present time could be shown to belong to past centuries and that research into more fruitful fields could be stimulated thereby.

FROM THE ANCIENTS TO 1500 A.D.

The general impression from the old writers is that gonorrhea was a nuisance rather than a disease. Other more urgent medical problems claimed their attention. However, we shall give a few excerpts to show the trend. Moses taught that cleanliness and segregation was about all that was necessary; he was aware of the infectiousness of the disease, and it probably was very common. Its relative importance may be judged from the fact that two pigeons were considered the proper offering to the priest. Hippocrates, Galen, and Celsus mention gonorrhea casually without deigning it important enough for a longer discussion. There was some confusion with spermatorrhea at that time and the concern shown referred merely to the possible loss of strength by the constant loss of semen. The Arabs and the later Roman authors were more interested; specific therapeutic recommendations are being made. Alzahavarius (s. Albucasis) prescribed seawater and also salt water for urethral injections. It is interesting and illuminating that Eisenmann in 1830 in speaking about this adds the remark that recently urethral injections of seawater had been recommended for the treatment of gonorrheal infections. It is still more illuminating that in 1930 a contemporary author extols the use of a 1 per cent sodium chloride solution as a remedy against gonorrhea in the male. Alzahavarius lived over 900 years ago. A little later Lanfranc mentioned epididymitis as a gonorrheal complication; it occurred to him that the discharge ceased when the swelling of the testicle, as he thought, took place. The causal connection was misunderstood then and again and again. It led many physicians to the belief that any interference with the urethral discharge was bound to lead to complications and should therefore be avoided; it led others to the belief that the proper treatment of all complications was the reestablishment of the urethral discharge. Many of them used provocative injections and many others, rather recently, tried to reinfect the urethra with the pus of another case. In the same century, namely the thirteenth, the famous Petrus Hispanus advises the milk of an ass or a goat mixed with the juice of plantago to be taken per os as a sure cure of ulcers of the urethra. It was then the common conception that the amount of urethral discharge presupposed an ulcer. This misconception was not done away with until Cockburne and Morgagni made their pathological demonstrations. Constantinus Africanus used human milk with barley water for urethral injections and John of Ardern improved this by requiring that the mother should nurse a male infant; he also added a little sugar, oil of violets, and milk of almonds. John of Gaddesden (about 1300) gave a recipe for urethral injections containing barley water, honey water, and an iris decoctum; and Joannes Arculanus in his discussion of the famous Arabian physician Rhazes, who lived from 850–923) stated that the Arab's prescription containing antimony, lapis haematitis, and acacia met with his approval. Enough of this; it is apparent that since they were expected to do something they lived up to the expectation and tried not to do any harm.

The Period of Syphilis (from 1500 to About 1750)

When syphilis became the dread disease in Europe gonorrhea promptly and properly was ignored for the time being. There are some statistical reports in the literature which take heed of that old disease gonorrhea, gleet, brenning, droeppert, tripper, and so forth, but they are unbelievable even for those times. Eight hundred cases of syphilis—one case of gonorrhea; no gonorrhea for several years. The only explanation is that syphilis went along with gonorrhea, or rather vice versa, and syphilis being the predominant disease, the gonorrheal symptoms were overlooked. Occasionally only a fortunate male would apply for help when there was nothing wrong except discharge from the penis and dysuria. It is not very surprising that the great confusion started at that time: gonorrhea and syphilis were regarded as identical diseases. To the daily observer who saw his patients with the old and the new disease always associated, who saw the patient with gonorrheal symptoms to begin with and then saw him develop chancres and so forth in due time it was evident that the two went together. Paracelsus, a medical Napoleon, allowed no more doubt; he declared himself for the identity and that sealed it. Joannes de Vigo (1513) was the last "dualist" for some time to come. Therefore the literature on gonorrhea is scarce until the advent of the eighteenth century. However, as syphilis became a more lenient disease, it became evident to the general practitioner that he had to do something about the gonorrheal symptoms. They were still classed as syphilitic and many ingenious relations were advanced to explain the connection between the early gonorrheal symptoms and the later syphilitic symptoms and it is not surprising that the fortunate doctor who treated a case of gonorrhea and failed to see dread syphilis in its wake took credit for skillful cures.

That was the aim, then, not to let gonorrhea degenerate into syphilis. Mercury had been found to be the supreme healer of syphilitics, therefore the gonorrheics were treated likewise, and since the urethral discharge was apparently nature's method of getting rid of some irritant poison or contagion it was considered wise not to interfere with the discharge. A few examples will suffice. Sydenham is a good one; his recommendations were purging, venesection, calomel; injections were harmful. Gideon Harvey in his "Venus Unmasked" wrote in a similar vein: purging, venesection, and demulcents to combat the acrimony of the urine. He also used mercury in the form of calomel and added guiac which had received such warm acclaim in the treatment of syphilis. Stephen Blancard in his "Besieged Venus" deviated a little. Of course, he also used mercury purges, but he asked his colleagues not to weaken the patient by too many venesections. While he feared the suppression of the discharge greatly (it may bring on the pox) he still thought that urethral injections of tea were of advantage. He gave many case histories which served no purpose except to extol his standing as a therapeutist. And as a last member of this group let us mention Jean Astruc, who apparently was of better caliber. He wrote an elaborate treatise on venereal diseases and made a sincere effort to evaluate the work done so far. His own regime of treatment was given in detail, but it will be sufficient to say that after the usual purges, venesections, and mercury intoxications he came to the use of balsamics and bland urethral injections. He was critical of many prescriptions given by others, but only after he had made a trial. He particularly attacked the use of cantharides which were recommended in ½ grain doses and which caused frequently unbearable bladder pain and hematuria, and he did not think much of lime water mixed with calomel for urethral injections.

Then as now publications appeared which contained the great secret of a sure and rapid cure. Lead in the form of a bolus mixed with turpentine and camphor was highly praised by Mayerne who promised a cure in a few days. Musitanus said that one could cure gonorrhea in three days with plantago extract and calomel, and Martin Lister thought cochineal the supreme remedy. Astruc disagreed with the whole lot, but in his discussion of Chesneau who advised the use of calomel he agreed heartily saying that he had seen marvelous results from the use of small amounts of it.

We should not leave this period without pointing out the fact that the sufferer from a venereal disease at that time received full punishment for his indiscretions; most therapeutic endeavors were designed to give him some thing additional to worry about. We have mentioned the large doses of cantharides already, but the large doses of mercury were probably still more harmful. The theoretical attitude concentrated on the amount of salivation produced and the saliva was often measured very much in the same way as we measure the patient's urinary output today. It is also significant that the attitude of the various authors left no doubt in the mind of the reader as to the value of the advice given; it was put forth with an assurance which must have been in reciprocal relation to his security as a therapeutist. Apparently not one of them came out with the pessimistic story of the facts; yet all of them could have done so, if they had thought it wise.

FROM 1750–1830; ASTRUC TO RICORD

This period is mainly interesting on account of the struggle to establish gonorrhea as an independent disease once more. We are mainly interested in William Cockburne, who was the first to make marked improvements in the conception of the disease. Among his many contentions was one that the discharge from the urethra came from the lacunae which he described and illustrated. Morgagni finally got credit for this but there is no doubt that Cockburne had found them independently. He also showed that the so-called "carnosity" of the urethra, namely a caruncle, which had been held responsible for the urinary difficulties following gonorrhea, was an erroneous conception and that the difficulty was due to a thickening of the mucosa and a narrowing of the lumen. He still thought that there was some connection between gonorrhea and syphilis, but he contended that either disease could exist without the other. A small quantity of corruption would cause gonorrhea, a large quantity would cause syphilis. In his methods of treatment he did not deviate markedly from his contemporaries. He still used purges and he still was greatly afraid of stopping the discharge too quickly. There were injections, he claimed, which would kill the corruption and the running without endangering the patient with the pox and there were other methods of treating gonorrhea, namely by increasing the discharge, which then would remove the corruption. He has an interesting chapter on the "Algedo," namely the early stoppage of the discharge; he considered this a dreaded complication causing great pain in the bladder and in the anus. From his case histories it is apparent that at least some of these patients suffered from prostatic abscesses.

Almost at the same time there appeared in England a number of publications which contended that syphilis and gonorrhea were caused by two different contagions. Francis Balfour (1767) was the first and he was quickly followed by Charles Hales (1770) and W. Ellis (1771). Ellis, who was an apothecary, appears to be the best informed and the most convincing. He pointed to the fact that syphilis could not be cured without mercury, while gonorrhea could; he also made inoculation experiments with gonorrheal pus and showed that a chancre did not follow. Johann Clemens Tode in Copenhagen made the same contention in 1774 but did not have any experiments. At the same time mercury became less important as a remedy, but the antiphlogistic apparatus, vensections, mucilaginous decoctions, and balsamics were used. Local treatment was frowned upon by the majority, but a few claimed quick and regular success by the use of their method.

The time is also known through its belief, which was then almost universal and which persisted for almost a century, that a gonorrheal complication could be ameliorated if the discharge could be reestablished. The method in vogue was the introduction of pus from another patient into the urethra of the sufferer from ophthalmia, epididymitis, or whatever the case might be.

We should not leave this particular period, in which progress had been made but in which the therapy of gonorrhea was in such a confused state, without mentioning Bernard Peyrilhe who evaluated the status of contemporary knowledge correctly by stating that gonorrhea was a self-limited disease, that therapeutic efforts were silly and in many cases harmful.

John Hunter's famous experiment, which took place in 1767, is well known. In a lesser man it would not have meant much, but coming from such an excellent physician and being argued with such skill it was enough to delay clarity for almost seventy years. Hunter's own therapeutic technique as applied to gonorrhea revived mercury again. He not only used it internally but also locally in the form of bichloride injections (1:2000). He also used sugar of lead (1:300) for injections and cantharides and turpentine internally.

John Howard, who followed immediately after Hunter, showed the latter's influence in all of his writings. He was convinced that the same virus caused syphilis as caused gonorrhea and his treatment of the latter employed the whole medieval armament: venesections, purging, mercury and antimony. He did not think much of local treatment, but thought that it was permissible in some cases. The best injection consisted of calomel in water. Treatment with his internal method cured in six weeks; injection treatment took much longer.

Shortly afterwards cubebs were introduced as the supreme remedy. They were given in dram doses. A few days' medication was considered sufficient in most cases.

With the beginning of the nineteenth century the dualists came again to the fore but another confusion arose which did not do much damage but which is interesting to note. Since stricture of the urethra was a fairly common after-effect of gonorrhea the notion became popular that other strictures and narrowings of the hollow viscera were due to gonorrhea. The pathology of syphilis with its many deferred phenomena made a chronic, even incurable, gonorrhea understandable. So when a patient was found with a rectal or esophageal stricture and a history of gonorrhea in his early life was elicited, the conclusion was drawn that these strictures were gonorrheal in nature. Eisenmann in his two volume work on gonorrhea devotes almost the whole second volume to postgonorrheal complications; he is also a good historian and merits attention on account of his honesty and impartiality. Treatment at his time was mostly by internal medication. Injections were used of course, but he did not approve.

We are now almost up to Ricord, but we should not miss a glance at a statistical compilation which was published in the *Edinburgh Medical and Surgical Journal* in 1818. The compilation came from two army physicians and was accepted as a true indication of the value of certain drugs. We may assume of course that the duration of disease is identical with the duration of the discharge. Fifteen patients who were treated by rest and fasting were cured in an average of eight and one-half days; 8 treated with cubebs in five and one-half days; 4 with camphor in nine days, 8 with capsicum in thirteen and one-half days, and 20 treated locally with injections of a 4 per cent (!) solution of silver nitrate were cured in seventeen and one-half days.

Ricord has become immortal through his decisive experiments which showed that Hunter was wrong. He did little for our problem. Silver nitrate was his supreme remedy and he used it in unbelievably strong solutions in the urethra as well as in the vagina. He also recommended camphor highly as a sedative.

FROM RICORD TO THE PRESENT TIME

The literature on gonorrhea after Ricord contains little of interest on therapy. Slowly the new bacteriological knowledge occupies the stage. From Donné who thought that the trichomonas was the causative organism of gonorrhea (1837) to Neisser who found the diplococcus in 1879 all sorts of organisms are described and claimed. Bumm succeeded in isolating the gonococcus and in infecting a female urethra. Since then it has been more or less a therapeutic battle with antiseptics. The silver salts led the host of chemicals which were invented, praised, and discarded, and at the present moment the stage is still the same. Every year brings forth a number of new compounds and every year we loose a like number. The gonococcus too has become a helpmate against its ravages. The number of vaccines, sera, extracts, etc. almost outnumber the silver salts. Even as in the sixteenth century gonorrhea is still a rich field for quacks. In the last decade alone we have been advised that a 1 per cent saline solution is a most efficient therapeutic agent, that pure ether injected into the urethra will cure, that formaldehyde vapors will do it too and that tincture of iodine is highly effective but of course a little painful.

It seems that there is something wrong in our approach. In spite of the rather good knowledge we have about the bacteriology of the gonococcus and the pathology of the organs affected we still behave like the primitive experimenters of centuries ago. Some clever chemist synthetizes a new organic silver salt. His medical associate uses it on men afflicted with gonorrhea. He is impressed favorably and says so. Others concur and the new compound is a success until another chemist brings out something else. Or a bacteriologist makes a new vaccine; he may add bile salts, he may detoxicate it, he may make it more toxic, he may use live organisms, he may use 50 strains, or what not, but he will find a group of physicians who will be favorably impressed and another step forward has been taken.

The only explanation for these many successes is the fact that gonorrhea is a mild disease, a disease which will respond to the admonitions of Moses as well as to an organic silver preparation. However, it is a mild disease to the average patient and to the casual observer, but not to the epidemiologist. The statistical data collected in Europe before the war indicate that every male in the large cities, as in Berlin, has to expect a gonococcus infection once in his life and that every poor mariner in cities like Hamburg and Bremen has to suffer twice in a life time.

We may also mention its complications and so be assured that it is a problem worthy of great efforts. But the efforts must be less primitive; the disease is not known well enough. Its course without treatment cannot even be approximately stated with statistical figures; even with treatment we do not know yet if the average case may be expected to last two months or six months. Our pathological knowledge of the disease is still deficient. Where are the gonococci, how long do they last in near or remote foci, how are they slain or if this is too much what are their living conditions in vivo?

Until some of these questions are solved it will be an accident if we find the means of shortening a gonococcus infection materially and it will be a miracle if we find a specific treatment.

BOOK REVIEWS

The Story of Medicine in the Middle Ages. By David Riesman, M.D., SC.D., Professor of the History of Medicine and Professor Emeritus of Clinical Medicine, University of Pennsylvania. N. Y., Paul B. Hoeber, Inc., 1935.

Though there is manifest a greatly increased interest in the history of medieval medicine, as evidenced by the number of articles which appear on the subject in periodical literature from time to time, this is the first connected historical survey of the whole subject which has appeared from the pen of an American author. Many years ago Fort opened the way for a study of the subject by his "Medieval Economy of the Middle Ages" and Lynn Thorndyke, Charles Singer and J. J. Walsh have since written books of the greatest value which have thrown new light on various aspects of the period. Dr. Riesman's book relates in the happiest vein a consecutive history of the trends of medical thought and practice of a period the history of which is more obscure than that of the glorious times preceding it. That might be said of the people of medieval Europe, which was said before with less justice of the Greeks: "they were old enough to talk but not to bear children." To the average reader the history of medieval medicine is dull and repellent. The few names which are cited of men who stand out, Arnold of Villa Nova, Albertus Magnus, even Roger Bacon and Thomas Aquinas, were great by contrast with their contemporaries and their influence was more largely due to this than to their actual achievements. Contrast their minds and characters and the results of their labors with the Greeks and Romans and see how they fail to measure up. Nevertheless, this very view of the subject makes us desirous of knowing what was done in such an abysmal period of history and Dr. Riesman tells us this in a charming way. One cannot drop ten or twelve centuries out of consideration of the history of a subject such as medicine which beginning in the dark backward and abysm of time continues to the present day. Great things did happen during those centuries. Universities had their birth and development and new sciences, anatomy, chemistry and others were born. Terrible epidemics, leprosy, plague, sweating sickness, etc., devastated whole countries from time to time and even influenced the course of history. Just as the end of the period arrived, syphilis manifested itself in epidemic form.

The exact date when the Middle Ages merged into the Renaissance is much disputed. The border years were marked by the discovery of printing and the New World. Some would even end them, as far as science is concerned, with the publication in 1543 of the epochmaking works of Copernicus and Vesalius. Dr. Riesman has made his survey wide enough to include Fracastorius and Paracelsus, who may be considered as links between the two periods. The reader will find much new material and many new angles of view in this study of a period concerning which much of the material in the standard general histories of medicine is merely a repetition and which is already familiar to anyone who has looked into the subject at all. The text is accompanied by excellent notes with adequate references to source material. There are many well-executed and appropriate illustrations and a good index.

THE MEDICINE-MAN OF THE AMERICAN INDIAN AND HIS CULTURAL BACKGROUND. By William Thomas Corlett, M.D., L.R.C.P. London. Springfield, Ill., Charles C. Thomas, 1935.

Except to students of the Indian races of North and South America the status of the Indian medicine man or shaman is but little understood or entirely misapprehended. He is quite generally regarded as a fakir or a crook, who by cunning or superior intelligence has acquired his rank or reputation as a healer. The fact that he has had to undergo any special training is entirely ignored, and he is not given credit for any special knowledge fitting him for his vocation. Dr. Corlett's book is a valuable study of the medical practice of the native races of the Western Hemisphere, from the Arctic Circle to Patagonia, and it is the first well-documented work as far as we know to thus study the entire field. The medicine man is a familiar figure in literature and much has been written and appeared in isolated form of the medicine man as he functions in various tribes of the Indian race, but Dr. Corlett not only tells us how the practice of the medicine man varies in different regions of the country and in different tribes, but he explains these differences and describes the various forms of training undergone by the medicine man before he is qualified to practice his profession. The first part of the book opens with a discussion of the racial origin of the peoples indigenous to the two Americas. Dr. Corlett believes the peopling of the New World was begun by Mongolian Asiatics, who crossed Bering Strait, and gradually migrated southward. He then gives the customary division of the New World into fifteen different culture areas or centers scattered throughout North America, Central America and South America, and bases his subsequent account of medical conditions among the Indians on these cultural divisions, each of which shows very distinct and different characteristics, though certain conceptions are common to all. Thus the supernatural plays a most prominent part, disease being chiefly considered due to object intrusion (the projection of a foreign body, bone, thorn, stick, etc.), loss of the soul, sorcery, spirits, breach of taboo, etc. Accordingly magic and sorcery are the chief reliance of the medicine man, and faith cure plays the greatest part in his success. Universally the aspirant to the profession has to undergo some sort of training or professional education. In some tribes, particularly the Pueblo Indians, Hopis and Acomas, the medicine men of the tribe form a sort of society or guild, admission to which is very difficult. The medicine man among the Indians of the Amazon undergoes a terrifying apprenticeship, in which, besides undergoing many other privations, his body is cut in many places and he is then exposed to be bitten by ants, and obliged to drink a decoction of tobacco and drippings from an exposed corpse. A curious feature of tribal medicine is the communal curing ceremony, usually observed in the spring season, by many tribes. The famous Hopi snake dance is of this character. We cannot go into the many interesting customs of this kind which Dr. Corlett describes. The author leans to the view that syphilis was not of American origin and also believes that there is not sufficient evidence to prove that tuberculosis existed in the New World prior to the coming of Europeans. It is gratifying to read a book on the Indians of this hemisphere which is not merely a record of curious and banal customs but a scientific study of an important phase of their cultural life.

THE MEDICAL MAN AND THE WITCH DURING THE RENAISSANCE. By Gregory Zilboorg, M.D. The Hideyo Noguchi Lectures. Publ. of the Inst. of the Hist. of Med., Johns Hopkins Univ. Ser. 3, Vol. 11. Balt., Johns Hopkins Press, 1935.

This book is much more than a recital of the time-worn stories of witchcraft and the attitude of the medical profession towards its practitioners. It is a profound analysis of the psychological state which prevailed at a period when almost every European honestly believed in the existence and pernicious activities of witches and sorcerers, which led to the torture and burning of thousands of unfortunates. The first lecture deals with the Bull of Pope Innocent VIII, in 1884, delegating two Dominican monks, Sprenger and Kraemer, as inquisitors to deal with the problem of the witches and wizards in Northern Germany and some territories along the Rhine, where these enemies of the human race had become peculiarly numerous and active. A few years later the monks wrote a large book to explain the nature of the evil they were deputed to suppress and to strengthen their hands in the measures they proposed to take for its suppression. This book, the "Malleus Maleficarum," is famous in the annals of witchcraft and had great influence in stirring up the lay as well as the clerical authorities to prosecute relentlessly the witches in their jurisdictions. As Zilboorg is careful to point out, Pope Innocent VIII and his inquisitors did not originate the mania for persecuting witches, though they did much to increase its fury. The belief in witches is found among the ancient Egyptians and the Hebrews of the Old Testament. Certain it is that during the Renaissance the prosecution of those suspected of witchcraft was more generally active than at any other time. There is no doubt that very many of those thus accused were psychoneurotics mentally deficient or insane. Here Zilboorg shows how the study of psychopathology by educated physicians was practically eliminated because, as stated in the "Malleus Maleficarum" and elsewhere, diseases were broadly divided into two classes: natural, or what we now call organic, and supernatural which we would now name functional, neurotic or psychogenic. The physician was supposed to limit his activity to the former, all the other disorders falling into the category to be dealt with by theologians and lawyers. Thus these poor neuros were sacrificed by thousands without any adequate medical study of the pathological conditions from which the majority suffered. The whole field of psychiatry was occupied by theologians whose psychiatric practice was based entirely on the Old Testament injunction that a witch should be stoned. It is curious that at the period when art, literature and science were being reborn "humanity stood in one respect on a lower level of mental development than do some of the primitive races today" (Binz). The first real attempt to introduce scientific methods in relation to medical psychology was made by Johann Weyer in his book "De prestigiis daemonum," published in 1563, in which he treated the whole subject of possession, witchcraft and sorcery from a purely scientific standpoint. Although his book was placed on the Index, it went through many editions and exercised a powerful influence. His analyses of cases of supposed possession read much like the case reports of a modern psychiatric clinic. But Weyer's voice was as that of one crying in the wilderness. The witch mania lessened in intensity as years went on but there were isolated cases of the burning of witches well into the eighteenth century. Zilboorg suggests that the tendency to regard insanity as an incurable disease, which was not to be benefited by any kind of treatment, only managed by custodial care, which prevailed till comparatively recent times, was a relic of the sixteenth century attitude towards psychoneurotic disorders.

Dr. Zilboorg's book is one that should be carefully read and studied not only by psychiatrists but by all who are interested in the history of the Renaissance.

Some Thoughts of a Doctor. By Frederick Parkes Weber. London, H. K. Lewis and Co., Ltd., 1935.

These short detached essays by the author of "Aspects of Death and Correlated Aspects of Life in Art, Epigram and Poetry" are fully up to the standard of what one might expect from the pen of one who is not only a very distinguished clinical pathologist, but also a philosopher and humanist. Some of the papers in this volume are devoted essentially to scientific medicine, but interspersed with these are a number in which the author deals with more general topics, chiefly sociological. The first essay is a very amusing fable concerning Titania and the spiders who wove the clothing for the fairies and how Oberon limited overproduction by not allowing any inventions to be utilized unless it could be proved that they would be of real use to the public and not increase the danger of overproduction. Several of the essays deal with the Freudian theories and in them Dr. Weber's gentle but incisive humor is shown at its best. As is well known, Dr. Weber has been a great collector of medals and coins and also has been a very generous donor from his collections to various museums. In the essay on "Extravagance in Freudian Teaching and Freudian Explanations," Dr. Weber quotes from Dr. Ernest Jones the statement that "all collectors are anal-erotics, and the objects collected are nearly always typical copro-symbols: thus money, coins (apart from current ones), stamps, eggs, butterflies," and says that as a collector such a statement had personal interest for him, but he was consoling himself with the reflection that he had not been miserly in his collecting, when he read further and found that in the category of anal-erotics were also included those who showed "the opposite of parsimony, namely, extreme generosity and extravagance." Weber suggests that maybe such psychoanalytical explanations are invented by their perpetrators as sort of subtle jokes, and that their authors thrust their tongues in their cheeks when they see them accepted literally. Dr. Weber's own "Thoughts about Thinking and Dreaming" are really worthwhile speculations on this profound subject. Space does not permit more detailed consideration of the many other fascinating bits in this charming volume.

A BIBLIOGRAPHY OF TWO OXFORD PHYSIOLOGISTS RICHARD LOWER, 1631–1691, AND JOHN MAYOW, 1643–1679. By John F. Fulton, M.A. Oxon., Sterling Professor of Physiology, Yale University School of Medicine. Oxford, Printed at the University Press by John Johnson, 1935.

Since Gotch published his little work on Lower and Mayow in 1908 there has been a great deal of light thrown upon the scientific research carried on at Oxford during the sixteenth century not only by Lower and Mayow but by Robert Boyle, Robert Hooke, Thomas Willis and others. The labors of Gunther, Franklin, Patterson and Fulton have brought forth a mass of material which has thrown new light not only on the lives, but on the scientific methods employed by these pioneers and the results they achieved.

The bibliographical studies by Keynes of the writings of William Harvey and Sir Thomas Browne, and by Fulton of the works of Robert Boyle are of incalculable value to any student of this most important period of scientific activity at Oxford and, in the present bibliography of Lower and Mayow, Fulton increases our indebtedness. As Fulton says in his brief epilogue, no man's work can be fully understood unless we have knowledge of the spiritual and intellectual forces which influenced him and gave him his full stature. To such an understanding a "humanized bibliography" such as Fulton's is an invaluable aid. It is not possible nor is it necessary to go into details of Fulton's work, needless to say it is complete and accurate. It serves to confirm an impression which has been gradually growing as a result of recent studies, that Mayow was not the sort of transcendental genius that he used to be represented, whereas Lower has risen greatly in estimation.

The preface is preceded by a short extract from Willis' "Cerebri Anatome," in which he expresses his great appreciation of the assistance he had received from Lower in preparing his great work. Dr. Fulton's book is excellently presented and contains a number of interesting facsimiles.

DEUTSCHE VOLKSMEDIZIN. WISSENSCHAFTLICHE HEILKUNDE UND KULTUR. By Paul Diepgen. Stuttgart, Ferdinand Enke Verlag, 1935.

Although Professor Diepgen has written this delightful study under the egis of the surging German Nationalism, it is written in a temperate and scholarly vein without a chip on the shoulder. The book largely deals with the relations of the age-old *Volksmedizin*—folk medicine—and the medicine of the schools. There has been a constant interchange since earliest times between lay and official medical practice. In the early days the latter borrowed and adopted many of its methods from the former. Later, in the Middle Ages and in modern times, the laity has absorbed much medical knowledge from the educated physician. There has always been a more or less characteristic Germanic folk medicine. While it adopted many foreign elements, Keltic and Roman in the Southwest, Slavic in the East, it transformed them and gave them a Germanic stamp. All sorts of pagan superstitions survived and still survive in the customs of the people. The Church was hostile in some instances, in others it gave to the ineradicable cults a Christian mantle. The Crusades and an active trade with the Orient brought a number of foreign practices and ideas to Germany: magic, astrology and alchemy, as well as spices and many medicinal preparations which soon became known to the common people. In modern times the traditional rift between popular and official medicine has widened greatly. Medicine has become too scientific for the lay understanding. There was however a recent period in Germany and largely confined to Germany, in which educated laymen felt medicine to be an altogether proper theme for their speculations. That was the Romantic period. It produced men of the type of the brothers Schlegel, the philosopher Schelling and the poet Novalis, who wrote on medicine and even attempted to treat disease. The sterile Romantic school disappeared with the rise of scientific method under Virchow and his followers. But despite its scientific character, the medicine of today has its roots, though often difficult to trace, in the Germanic folk medicine and reaches back to a hoary past. The strength and persistence of these primitive roots are connected with two characteristic qualities of the Germanic race: intense nature feeling and a "platonic" flight of ideas into far distant reaches.

Few men have the ability to crowd into 130 pages of text the amount of historic knowledge and philosophic speculation one finds in this most interesting work of Paul Diepgen, who is the Director of the Institute of the History of Medicine and of the Natural Sciences in the University of Berlin.

DAVID RIESMAN.

URSO, DER LETZTE DES HOCHSALERNO, ARZT, PHILOSOPH, THEOLOGE. By Sanitätsrat Dr. Rudolf Creutz. Berlin, Verlag Dr. Emil Ebering, 1934.

Urso is the fifth but by no means the least in the galaxy that made Salerno famous—Roger, the founder of surgery in the occident, Petrus Musandinus, writer on dietetics, Romualdus of the famous Guarna family, physician, diplomat, jurist and theologian, and Maurus, physician to the rich. These four and Urso were the teachers of Salerno at the time of Gilles de Corbeil, the great Frenchman who carried the doctrines of Salerno to Paris. Greutz's study is based on the only known Ms of Urso's work, "De commixtionibus elementorum," in the Bodleian Library at Oxford.

DAVID RIESMAN.

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